THE OFFICIAL PATIENT'S SOURCEBOOK *on*

MDMA DEPENDENCE

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AND PHILIP M. PARKER, PH.D., EDITORS

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Dedication

To the healthcare professionals dedicating their time and efforts to the study of MDMA dependence.

Acknowledgements

The collective knowledge generated from academic and applied research summarized in various references has been critical in the creation of this sourcebook which is best viewed as a comprehensive compilation and collection of information prepared by various official agencies which directly or indirectly are dedicated to MDMA dependence. All of the *Official Patient's Sourcebooks* draw from various agencies and institutions associated with the United States Department of Health and Human Services, and in particular, the Office of the Secretary of Health and Human Services (OS), the Administration for Children and Families (ACF), the Administration on Aging (AOA), the Agency for Healthcare Research and Quality (AHRQ), the Agency for Toxic Substances and Disease Registry (ATSDR), the Centers for Disease Control and Prevention (CDC), the Food and Drug Administration (FDA), the Healthcare Financing Administration (HCFA), the Health Resources and Services Administration (HRSA), the Indian Health Service (IHS), the institutions of the National Institutes of Health (NIH), the Program Support Center (PSC), and the Substance Abuse and Mental Health Services Administration (SAMHSA). In addition to these sources, information gathered from the National Library of Medicine, the United States Patent Office, the European Union, and their related organizations has been invaluable in the creation of this sourcebook. Some of the work represented was financially supported by the Research and Development Committee at INSEAD. This support is gratefully acknowledged. Finally, special thanks are owed to Tiffany LaRochelle for her excellent editorial support.

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In addition to MDMA dependence, *Official Patient's Sourcebooks* are available for the following related topics:

- The Official Patient's Sourcebook on Alcoholism
- The Official Patient's Sourcebook on Anabolic Steroid Dependence
- The Official Patient's Sourcebook on Club Drug Dependence
- The Official Patient's Sourcebook on Cocaine Dependence
- The Official Patient's Sourcebook on Dextromethorphan Dependence
- The Official Patient's Sourcebook on Dissociative Drug Dependence
- The Official Patient's Sourcebook on GHB Dependence
- The Official Patient's Sourcebook on Hepatitis C
- The Official Patient's Sourcebook on Heroin Dependence
- The Official Patient's Sourcebook on Inhalants Dependence
- The Official Patient's Sourcebook on Ketamine Dependence
- The Official Patient's Sourcebook on LSD Dependence
- The Official Patient's Sourcebook on Marijuana Dependence
- The Official Patient's Sourcebook on Methamphetamine Dependence
- The Official Patient's Sourcebook on Nicotine Dependence
- The Official Patient's Sourcebook on PCP Dependence
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INTRODUCTION

Overview

Dr. C. Everett Koop, former U.S. Surgeon General, once said, "The best prescription is knowledge."[1] The Agency for Healthcare Research and Quality (AHRQ) of the National Institutes of Health (NIH) echoes this view and recommends that every patient incorporate education into the treatment process. According to the AHRQ:

> Finding out more about your condition is a good place to start. By contacting groups that support your condition, visiting your local library, and searching on the Internet, you can find good information to help guide your treatment decisions. Some information may be hard to find—especially if you don't know where to look.[2]

As the AHRQ mentions, finding the right information is not an obvious task. Though many physicians and public officials had thought that the emergence of the Internet would do much to assist patients in obtaining reliable information, in March 2001 the National Institutes of Health issued the following warning:

> The number of Web sites offering health-related resources grows every day. Many sites provide valuable information, while others may have information that is unreliable or misleading.[3]

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[1] Quotation from **http://www.drkoop.com**.
[2] The Agency for Healthcare Research and Quality (AHRQ): **http://www.ahcpr.gov/consumer/diaginfo.htm**.
[3] From the NIH, National Cancer Institute (NCI): **http://cancertrials.nci.nih.gov/beyond/evaluating.html**.

Since the late 1990s, physicians have seen a general increase in patient Internet usage rates. Patients frequently enter their doctor's offices with printed Web pages of home remedies in the guise of latest medical research. This scenario is so common that doctors often spend more time dispelling misleading information than guiding patients through sound therapies. *The Official Patient's Sourcebook on MDMA Dependence* has been created for patients who have decided to make education and research an integral part of the treatment process. The pages that follow will tell you where and how to look for information covering virtually all topics related to MDMA dependence, from the essentials to the most advanced areas of research.

The title of this book includes the word "official." This reflects the fact that the sourcebook draws from public, academic, government, and peer-reviewed research. Selected readings from various agencies are reproduced to give you some of the latest official information available to date on MDMA dependence.

Given patients' increasing sophistication in using the Internet, abundant references to reliable Internet-based resources are provided throughout this sourcebook. Where possible, guidance is provided on how to obtain free-of-charge, primary research results as well as more detailed information via the Internet. E-book and electronic versions of this sourcebook are fully interactive with each of the Internet sites mentioned (clicking on a hyperlink automatically opens your browser to the site indicated). Hard copy users of this sourcebook can type cited Web addresses directly into their browsers to obtain access to the corresponding sites. Since we are working with ICON Health Publications, hard copy *Sourcebooks* are frequently updated and printed on demand to ensure that the information provided is current.

In addition to extensive references accessible via the Internet, every chapter presents a "Vocabulary Builder." Many health guides offer glossaries of technical or uncommon terms in an appendix. In editing this sourcebook, we have decided to place a smaller glossary within each chapter that covers terms used in that chapter. Given the technical nature of some chapters, you may need to revisit many sections. Building one's vocabulary of medical terms in such a gradual manner has been shown to improve the learning process.

We must emphasize that no sourcebook on MDMA dependence should affirm that a specific diagnostic procedure or treatment discussed in a research study, patent, or doctoral dissertation is "correct" or your best option. This sourcebook is no exception. Each patient is unique. Deciding on

appropriate options is always up to the patient in consultation with their physician and healthcare providers.

Organization

This sourcebook is organized into three parts. Part I explores basic techniques to researching MDMA dependence (e.g. finding guidelines on diagnosis, treatments, and prognosis), followed by a number of topics, including information on how to get in touch with organizations, associations, or other patient networks dedicated to MDMA dependence. It also gives you sources of information that can help you find a doctor in your local area specializing in treating MDMA dependence. Collectively, the material presented in Part I is a complete primer on basic research topics for patients with MDMA dependence.

Part II moves on to advanced research dedicated to MDMA dependence. Part II is intended for those willing to invest many hours of hard work and study. It is here that we direct you to the latest scientific and applied research on MDMA dependence. When possible, contact names, links via the Internet, and summaries are provided. It is in Part II where the vocabulary process becomes important as authors publishing advanced research frequently use highly specialized language. In general, every attempt is made to recommend "free-to-use" options.

Part III provides appendices of useful background reading for all patients with MDMA dependence or related disorders. The appendices are dedicated to more pragmatic issues faced by many patients with MDMA dependence. Accessing materials via medical libraries may be the only option for some readers, so a guide is provided for finding local medical libraries which are open to the public. Part III, therefore, focuses on advice that goes beyond the biological and scientific issues facing patients with MDMA dependence.

Scope

While this sourcebook covers MDMA dependence, your doctor, research publications, and specialists may refer to your condition using a variety of terms. Therefore, you should understand that MDMA dependence is often considered a synonym or a condition closely related to the following:

- Ecstasy
- Ecstasy Abuse

- Ecstasy Addiction
- Ecstasy Dependence
- Mdma
- Mdma Abuse
- Mdma Addiction
- Mdma Dependence
- Methylenedioxymethamphetamine
- Methylenedioxymethamphetamine Abuse
- Methylenedioxymethamphetamine Addiction
- Methylenedioxymethamphetamine Dependence

In addition to synonyms and related conditions, physicians may refer to MDMA dependence using certain coding systems. The International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) is the most commonly used system of classification for the world's illnesses. Your physician may use this coding system as an administrative or tracking tool. The following classification is commonly used for MDMA dependence:[4]

- 304 drug dependence
- 304.4 amphetamine and other psychostimulant dependence
- 305.7 amphetamine or related acting sympathomimetic abuse

For the purposes of this sourcebook, we have attempted to be as inclusive as possible, looking for official information for all of the synonyms relevant to MDMA dependence. You may find it useful to refer to synonyms when accessing databases or interacting with healthcare professionals and medical librarians.

Moving Forward

Since the 1980s, the world has seen a proliferation of healthcare guides covering most illnesses. Some are written by patients or their family members. These generally take a layperson's approach to understanding and

[4] This list is based on the official version of the World Health Organization's 9th Revision, International Classification of Diseases (ICD-9). According to the National Technical Information Service, "ICD-9CM extensions, interpretations, modifications, addenda, or errata other than those approved by the U.S. Public Health Service and the Health Care Financing Administration are not to be considered official and should not be utilized. Continuous maintenance of the ICD-9-CM is the responsibility of the federal government."

coping with an illness or disorder. They can be uplifting, encouraging, and highly supportive. Other guides are authored by physicians or other healthcare providers who have a more clinical outlook. Each of these two styles of guide has its purpose and can be quite useful.

As editors, we have chosen a third route. We have chosen to expose you to as many sources of official and peer-reviewed information as practical, for the purpose of educating you about basic and advanced knowledge as recognized by medical science today. You can think of this sourcebook as your personal Internet age reference librarian.

Why "Internet age"? All too often, patients diagnosed with MDMA dependence will log on to the Internet, type words into a search engine, and receive several Web site listings which are mostly irrelevant or redundant. These patients are left to wonder where the relevant information is, and how to obtain it. Since only the smallest fraction of information dealing with MDMA dependence is even indexed in search engines, a non-systematic approach often leads to frustration and disappointment. With this sourcebook, we hope to direct you to the information you need that you would not likely find using popular Web directories. Beyond Web listings, in many cases we will reproduce brief summaries or abstracts of available reference materials. These abstracts often contain distilled information on topics of discussion.

While we focus on the more scientific aspects of MDMA dependence, there is, of course, the emotional side to consider. Later in the sourcebook, we provide a chapter dedicated to helping you find peer groups and associations that can provide additional support beyond research produced by medical science. We hope that the choices we have made give you the most options available in moving forward. In this way, we wish you the best in your efforts to incorporate this educational approach into your treatment plan.

The Editors

PART I: THE ESSENTIALS

ABOUT PART I

Part I has been edited to give you access to what we feel are "the essentials" on MDMA dependence. The essentials of a disease typically include the definition or description of the disease, a discussion of who it affects, the signs or symptoms associated with the disease, tests or diagnostic procedures that might be specific to the disease, and treatments for the disease. Your doctor or healthcare provider may have already explained the essentials of MDMA dependence to you or even given you a pamphlet or brochure describing MDMA dependence. Now you are searching for more in-depth information. As editors, we have decided, nevertheless, to include a discussion on where to find essential information that can complement what your doctor has already told you. In this section we recommend a process, not a particular Web site or reference book. The process ensures that, as you search the Web, you gain background information in such a way as to maximize your understanding.

CHAPTER 1. THE ESSENTIALS ON MDMA DEPENDENCE: GUIDELINES

Overview

Official agencies, as well as federally-funded institutions supported by national grants, frequently publish a variety of guidelines on MDMA dependence. These are typically called "Fact Sheets" or "Guidelines." They can take the form of a brochure, information kit, pamphlet, or flyer. Often they are only a few pages in length. The great advantage of guidelines over other sources is that they are often written with the patient in mind. Since new guidelines on MDMA dependence can appear at any moment and be published by a number of sources, the best approach to finding guidelines is to systematically scan the Internet-based services that post them.

The National Institutes of Health (NIH)[5]

The National Institutes of Health (NIH) is the first place to search for relatively current patient guidelines and fact sheets on MDMA dependence. Originally founded in 1887, the NIH is one of the world's foremost medical research centers and the federal focal point for medical research in the United States. At any given time, the NIH supports some 35,000 research grants at universities, medical schools, and other research and training institutions, both nationally and internationally. The rosters of those who have conducted research or who have received NIH support over the years include the world's most illustrious scientists and physicians. Among them are 97 scientists who have won the Nobel Prize for achievement in medicine.

[5] Adapted from the NIH: **http://www.nih.gov/about/NIHoverview.html**.

There is no guarantee that any one Institute will have a guideline on a specific disease, though the National Institutes of Health collectively publish over 600 guidelines for both common and rare diseases. The best way to access NIH guidelines is via the Internet. Although the NIH is organized into many different Institutes and Offices, the following is a list of key Web sites where you are most likely to find NIH clinical guidelines and publications dealing with MDMA dependence and associated conditions:

- Office of the Director (OD); guidelines consolidated across agencies available at **http://www.nih.gov/health/consumer/conkey.htm**
- National Library of Medicine (NLM); extensive encyclopedia (A.D.A.M., Inc.) with guidelines available at **http://www.nlm.nih.gov/medlineplus/healthtopics.html**
- National Institute on Drug Abuse (NIDA); guidelines on abused drugs at **http://www.nida.nih.gov/DrugAbuse.html**

Among these, the National Institute on Drug Abuse is particularly noteworthy.[6] NIDA was established in 1974, and in October 1992 it became part of the National Institutes of Health, Department of Health and Human Services. The Institute is organized into divisions and offices, each of which plays an important role in programs of drug abuse research. NIDA's mission is to lead the Nation in bringing the power of science to bear on drug abuse and addiction. This charge has two critical components. The first is the strategic support and conduct of research across a broad range of disciplines. The second is to ensure the rapid and effective dissemination and use of the results of that research to significantly improve drug abuse and addiction prevention, treatment, and policy.

NIDA supports over 85 percent of the world's research on the health aspects of drug abuse and addiction. NIDA supported science addresses the most fundamental and essential questions about drug abuse, ranging from the molecule to managed care, and from DNA to community outreach research. NIDA is not only seizing upon unprecedented opportunities and technologies to further understanding of how drugs of abuse affect the brain and behavior, but also working to ensure the rapid and effective transfer of scientific data to policy makers, drug abuse practitioners, other health care practitioners and the general public. The NIDA web page is an important part of this effort (**http://www.nida.nih.gov/**). Before citing NIDA's most

[6] The section is reproduced or adapted from the NIDA: **http://www.nida.nih.gov/NIDAWelcome.html#Mission**. For the remainder of this book, "adapted" signifies attributed "reproduction" with formatting and other minimal editorial changes.

recent guideline on MDMA dependence, the discussion below reproduces NIDA's general overview of drug abuse and addiction.

Understanding Drug Abuse and Addiction[7]

Many people view drug abuse and addiction as strictly a social problem. Parents, teens, older adults, and other members of the community tend to characterize people who take drugs as morally weak or as having criminal tendencies. They believe that drug abusers and addicts should be able to stop taking drugs if they are willing to change their behavior.

These myths have not only stereotyped those with drug-related problems, but also their families, their communities, and the health care professionals who work with them. Drug abuse and addiction comprise a public health problem that affects many people and has wide-ranging social consequences. It is NIDA's goal to help the public replace its myths and long-held mistaken beliefs about drug abuse and addiction with scientific evidence that addiction is a chronic, relapsing, and treatable disease.

Addiction *does* begin with drug abuse when an individual makes a conscious choice to use drugs, but addiction is not just "a lot of drug use." Recent scientific research provides overwhelming evidence that not only do drugs interfere with normal brain functioning creating powerful feelings of pleasure, but they also have long-term effects on brain metabolism and activity. At some point, changes occur in the brain that can turn drug abuse into addiction, a chronic, relapsing illness. Those addicted to drugs suffer from a compulsive drug craving and usage and cannot quit by themselves. Treatment is necessary to end this compulsive behavior.

A variety of approaches are used in treatment programs to help patients deal with these cravings and possibly avoid drug relapse. NIDA research shows that addiction is clearly treatable. Through treatment that is tailored to individual needs, patients can learn to control their condition and live relatively normal lives.

Treatment can have a profound effect not only on drug abusers, but on society as a whole by significantly improving social and psychological functioning, decreasing related criminality and violence, and reducing the spread of AIDS. It can also dramatically reduce the costs to society of drug abuse.

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[7] Adapted from **http://165.112.78.61/Infofax/understand.html**.

Understanding drug abuse also helps in understanding how to prevent use in the first place. Results from NIDA-funded prevention research have shown that comprehensive prevention programs that involve the family, schools, communities, and the media are effective in reducing drug abuse. It is necessary to keep sending the message that it is better to not start at all than to enter rehabilitation if addiction occurs.

A tremendous opportunity exists to effectively change the ways in which the public understands drug abuse and addiction because of the wealth of scientific data NIDA has amassed. Overcoming misconceptions and replacing ideology with scientific knowledge is the best hope for bridging the "great disconnect" - the gap between the public perception of drug abuse and addiction and the scientific facts.

The National Institutes of Health has recently published the following guideline for MDMA dependence:

What Are Club Drugs?[8]

A number of the best monitoring mechanisms are detecting alarming increases in the popularity of some very dangerous substances known collectively as "club drugs." This term refers to drugs being used by young adults at all-night dance parties such as "raves" or "trances," dance clubs, and bars. MDMA (Ecstasy), GHB, Rohypnol, ketamine, methamphetamine, and LSD are some of the club or party drugs gaining popularity. NIDA-supported research has shown that use of club drugs can cause serious health problems and, in some cases, even death. Used in combination with alcohol, these drugs can be even more dangerous.

"Club drug" is a vague term that refers to a wide variety of drugs. Uncertainties about the drug sources, pharmacological agents, and chemicals used to manufacture them, and possible contaminants make it difficult to determine toxicity, consequences, and symptoms that might be expected in a particular community.

No club drug is benign. Chronic abuse of MDMA, for example, appears to produce long-term damage to serotonin-containing neurons in the brain. Given the important role that the neurotransmitter serotonin plays in regulating emotion, memory, sleep, pain, and higher order cognitive

[8] Adapted and quoted from the NIDA Director, Alan I. Leshner, Ph.D., address on Club Drugs Community Drug Alert Bulletin: **http://165.112.78.61/ClubAlert/ClubdrugAlert.html**

processes, it is likely that MDMA use can cause a variety of behavioral and cognitive consequences as well as impairing memory.

Because some club drugs are colorless, tasteless, and odorless, they can be added unobtrusively to beverages by individuals who want to intoxicate or sedate others. In recent years, there has been an increase in reports of club drugs used to commit sexual assaults.

NIDA is increasing its research efforts on club drugs to better understand how they act on the brain and how they produce their behavioral effects. NIDA will facilitate the development of treatment and prevention strategies targeted to the populations that abuse club drugs. As new research emerges, NIDA will continue to disseminate findings. Toward this end, NIDA has established a web site to provide scientific information about club drugs - **www.clubdrugs.org**.

Methylenedioxymethamphetamine (MDMA)[9]

The slang or street names for MDMA include Ecstasy, XTC, X, Adam, Clarity, Lover's Speed. MDMA was developed and patented in the early 1900's as a chemical precursor in the synthesis of pharmaceuticals. Chemically, MDMA is similar to the stimulant amphetamine and the hallucinogen mescaline. MDMA can produce both stimulant and psychedelic effects.

Methylenedioxyamphetamine (MDA) and methylenedioxyethylamphetamine (MDEA) are drugs chemically similar to MDMA. MDMA is taken orally, usually in a tablet or a capsule. MDMA's effects last approximately 3 to 6 hours, though confusion, depression, sleep problems, anxiety, and paranoia have been reported to occur even weeks after the drug is taken.

MDMA can produce a significant increase in heart rate and blood pressure and a sense of alertness like that associated with amphetamine use. The stimulant effects of MDMA, which enable users to dance for extended periods, may also lead to dehydration, hypertension, and heart or kidney failure.

MDMA can be extremely dangerous in high doses. It can cause a marked increase in body temperature (malignant hyperthermia) leading to the

[9] Adapted from the National Institute on Drug Abuse: **http://165.112.78.61/ClubAlert/Clubdrugalert.html**.

muscle breakdown and kidney and cardiovascular system failure reported in some fatal cases at raves. MDMA use may also lead to heart attacks, strokes, and seizures in some users. MDMA is neurotoxic. Chronic use of MDMA was found, first in laboratory animals and more recently in humans, to produce long-lasting, perhaps permanent, damage to the neurons that release serotonin, and consequent memory impairment.

MDMA use has been reported across the country, including many of the 21 cities that comprise NIDA's Community Epidemiology Work Group (CEWG), a network of researchers that provide ongoing community-level surveillance of drug abuse. CEWG cities in which MDMA use has been reported inlcude: Chicago, Denver, Miami, Atlanta, New Orleans, San Francisco, Austin, Seattle, Boston, Detroit, New York, St. Louis, Dallas, and Washington, D.C.

MDMA INFOFAX[10]

In addition to the guideline above, NIDA also publishes shorter guidelines in the form of INFOFAXs. The INFOFAX below is one recently dedicated to MDMA:

MDMA is a synthetic, psychoactive drug with both stimulant (amphetamine-like) and hallucinogenic (LSD-like) properties. Street names for MDMA include Ecstasy, Adam, XTC, hug, beans, and love drug. Its chemical structure (3-4 methylenedioxymethamphetamine, "MDMA") is similar to methamphetamine, methylenedioxyamphetamine (MDA), and mescaline - other synthetic drugs known to cause brain damage.

MDMA also is neurotoxic. In addition, in high doses it can cause a sharp increase in body temperature (malignant hyperthermia) leading to muscle breakdown and kidney and cardiovascular system failure.

Health Hazards

Brain imaging research in humans indicates that MDMA causes injury to the brain, affecting neurons that use the chemical serotonin to communicate with other neurons. The serotonin system plays a direct role in regulating mood, aggression, sexual activity, sleep, and sensitivity to pain. Many of the risks

[10] Adapted from **http://165.112.78.61/Infofax/ecstasy.html**.

users face with MDMA use are similar to those found with the use of cocaine and amphetamines:

- Psychological difficulties, including confusion, depression, sleep problems, drug craving, severe anxiety, and paranoia - during and sometimes weeks after taking MDMA.
- Physical symptoms such as muscle tension, involuntary teeth clenching, nausea, blurred vision, rapid eye movement, faintness, and chills or sweating.
- Increases in heart rate and blood pressure, a special risk for people with circulatory or heart disease.
- Also, there is evidence that people who develop a rash that looks like acne after using MDMA may be risking severe side effects, including liver damage, if they continue to use the drug.

Research links MDMA use to long-term damage to those parts of the brain critical to thought and memory. One study, in primates, showed that exposure to MDMA for 4 days caused brain damage that was evident 6 to 7 years later.

MDA, the parent drug of MDMA, is an amphetamine-like drug that has also been abused and is similar in chemical structure to MDMA. Research shows that MDA also destroys serotonin-producing neurons in the brain. MDMA also is related in its structure and effects to methamphetamine, which has been shown to cause degeneration of neurons containing the neurotransmitter dopamine. Damage to these neurons is the underlying cause of the motor disturbances seen in Parkinson's disease. Symptoms of this disease begin with lack of coordination and tremors and can eventually result in a form of paralysis.

Extent of Use

CEWG is a NIDA-sponsored network of researchers from 21 major U.S. metropolitan areas and selected foreign countries who meet semiannually to discuss the current epidemiology of drug abuse. CEWG's most recent report is *Epidemiologic Trends in Drug Abuse, Advance Report, December 2000*. In many of the 21 metropolitan areas monitored by CEWG members, MDMA, once used primarily at dance clubs, raves, and college scenes, is now being used in a number of other social settings:

- It is the most prominent stimulant used in Chicago;

- It is sold in many singles bars in Denver;
- It is used by a wide variety of age groups and in a number of recreational settings in Atlanta;
- It has become the drug of choice among white middle class young adults in Washington, D.C.

In Miami in 1999, there were eight MDMA-related deaths, and five in Minneapolis/St. Paul. In Boston during the first three quarters of 2000, MDMA was the most frequently mentioned drug in telephone calls to the Poison Control Center. MDMA is usually taken orally in pill form, but snorting has been reported in Atlanta and Chicago, as has injecting in Atlanta, and anal suppository use in Chicago.

Ecstasy content varies widely, and it frequently consists of substances entirely different from MDMA, ranging from caffeine to dextromethorphan.

Emergency room data indicate that MDMA is increasingly used by marijuana users, with reports of MDMA in combination with marijuana increasing from 8 in 1990 to 796 in 1999. Ecstasy tablets seized by the Drug Enforcement Administration increased from 13,342 in 1996 to 949,257 in 2000.

The 1999 Drug Abuse Warning Network (DAWN) emergency room (ED) data are from a national probability survey of 21 hospitals nationwide. The survey captures data on ED episodes that are related to the use of illegal drugs or the nonmedical use of legal drugs. The DAWN survey is funded by the Substance Abuse and Mental Health Services Administration (SAMHSA). Copies of the latest survey are available from the National Clearinghouse for Alcohol and Drug Information at 1-800-729-6686, or at **www.samhsa.gov**.

National Household Survey on Drug Abuse (NHSDA)

The National Household Survey on Drug Abuse (NHSDA) is an annual survey conducted by the Substance Abuse and Mental Health Services Administration (SAMHSA). Copies of the latest survey (1999) are available from the National Clearinghouse for Alcohol and Drug Information at 1-800-729-6686, or at **www.samhsa.gov**.

Each year, NHSDA reports on the nature and extent of drug use among the American household population age 12 and older. The 1998 survey is the

latest for data relating to MDMA use. It found that an estimated 1.5 percent (3.4 million) of Americans had used MDMA at least once during their lifetime. By age group, the heaviest use (5 percent or 1.4 million people) was reported for those between 18 and 25 years old.

Monitoring the Future Study (MTF)

The Monitoring the Future (MTF) survey is funded by National Institute on Drug Abuse, National Institutes of Health, and is conducted by the University of Michigan's Institute for Social Research. The survey has tracked 12th graders' illicit drug use and related attitudes since 1975; in 1991, 8th and 10th graders were added to the study. For the latest, year 2000 study, 45,173 students were surveyed from a representative sample of 435 public and private schools nationwide; the student response rate was 86%. For the latest survey results, please visit the NIDA website at **www.drugabuse.gov**.

From 1999 to 2000, the use of MDMA increased among all three grade levels measured in this study - 8th, 10th, and 12th. For 10th and 12th graders, this is the second consecutive year MDMA use has increased. Past year use of MDMA increased among 8th graders from 1.7 percent in 1999 to 3.1 percent in 2000; from 4.4 percent to 5.4 percent among 10th graders; and from 5.6 percent to 8.2 percent among 12th graders. Also among 12th graders, the perceived availability of MDMA rose from 40.1 percent in 1999 to 51.4 percent in 2000.

African American students showed considerably lower rates of Ecstasy use than white or Hispanic students in the 2000 MTF. For example, past year use among African American 12th graders was 1.3 percent, compared to 7.6 percent for white 12th graders and 10.6 percent for Hispanic 12th graders.

Ecstasy Use by Students, 2000: Monitoring the Future Study

	8th-Graders	10th-Graders	12th-Graders
Ever Used	4.3%	7.3%	11.0%
Used in Past Year	3.1%	5.4%	8.2%
Used in Past Month	1.4%	2.6%	3.6%

"Ever used" refers to use at least once during a respondent's lifetime. "Past year" refers to an individual's drug use at least once during the year preceding their response to the survey. "Past month" refers to an

individual's drug use at least once during the month preceding their response to the survey.

Sources for the above include (1) U.D. McCann, et al. The Lancet, Vol. 352:1433. October 31, 1998; and (2) G. Hatzidimitriou, et al. J. Neuroscience. 1999 19:5096-5107.

Additional NIDA Resources

In addition to the INFOFAX reproduced above, NIDA lists a number of additional guidelines at **http://165.112.78.61/drugpages/mdma.html**, its Web page dedicated to MDMA.

Publications[11]:

- **Ecstasy Abuse and Control** - Statement Before the Senate Subcommittee on Governmental Affairs, by Alan I. Leshner, Ph.D., NIDA Director: **http://165.112.78.61/Testimony/7-30-01Testimony.html**
- **Club Drugs - Community Drug Alert Bulletin** (**http://165.112.78.61/ClubAlert/Clubdrugalert.html**)
- **Mind Over Matter** - A seven-part series designed to encourage young people in grades five through nine to learn about the effects of drug abuse on the body and the brain: **http://165.112.78.61/MOM/MOMIndex.html**

NIDA Notes[12]:

- Volume 16, Number 5 - NIDA Conference Highlights Scientific Findings on MDMA/Ecstasy: **http://165.112.78.61/NIDA_Notes/NNVol16N5/Conference.html**
- Volume 16, Number 5 - The Many Faces of MDMA Use Challenge Drug Abuse Prevention: **http://165.112.78.61/NIDA_Notes/NNVol16N5/ManyFaces.html**
- Volume 16, Number 5 - MDMA/Ecstasy - A Drug With Complex Consequences: **http://165.112.78.61/NIDA_Notes/NNVol16N5/Consequences.html**

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[11] The following publications are available for download at **http://165.112.78.61/PubCat/Pubsindex.html**.

[12] The following NIDA Notes are available for download at **http://165.112.78.61/NIDA_Notes/NNIndex.html**.

- Volume 16, Number 5 - Using Science To Counter the Spread of Ecstasy Abuse: **http://165.112.78.61/NIDA_Notes/NNVol16N5/DirRepVol16N5.html**
- Volume 16, Number 2 - Annual Survey Finds Increasing Teen Use Of Ecstasy, Steroids: **http://165.112.78.61/NIDA_Notes/NNVol16N2/Annual.html**
- Volume 15, Number 1 - Overall Teen Drug Use Stays Level While Use of MDMA and Steroids Increases: **http://165.112.78.61/NIDA_Notes/NNVol15N1/Overall.html**
- November 1999 - "Ecstasy" Damages the Brain and Impairs Memory in Humans: **http://165.112.78.61/NIDA_Notes/NNVol14N4/Ecstasy.html**
- November 1999 - Facts About MDMA (Ecstasy): **http://165.112.78.61/NIDA_Notes/NNVol14N4/tearoff.html**
- April 1997 - Study Takes a Closer Look at "Ecstasy" Use: **http://165.112.78.61/NIDA_Notes/NNVol12N2/Ecstasy.html**
- December 1996 - Like Methamphetamine, "Ecstasy" May Cause Long-Term Brain Damage: **http://165.112.78.61/NIDA_Notes/NNVol11N5/Ecstasy.html**

News Releases[13]**:**

- 5/1/01: Researchers Find Evidence That Prenatal Use of Ecstasy Can Cause Long-Term Memory Loss and Other Impairments in Offspring: **http://165.112.78.61/MedAdv/01/NR5-1.html**
- 6/14/99: Long-Term Brain Injury From Use of "Ecstasy": **http://165.112.78.61/MedAdv/99/NR-614b.html**

Other Sources:

- "In the Mix - Ecstasy" - PBS Television Series: **http://165.112.78.61/MedAdv/Inthemix.html**
- MEDLINEplus Health Information on Substance Abuse - National Library of Medicine, NIH: **http://www.nlm.nih.gov/medlineplus/substanceabuse.html**

[13] Go to News Release Index: **http://165.112.78.61/MedAdv/MAs-index.html**.

In addition to guidelines on MDMA dependence, the NIDA publishes general guidelines on drug abuse treatment. These include its INFOFAX articles on:

- Treatment methods (**http://165.112.78.61/Infofax/treatmeth.html**)
- Treatment medications (**http://165.112.78.61/Infofax/treatmed.html**)
- Behavioral change through treatment (**http://165.112.78.61/Infofax/behavchange.html**)
- Treatment methods for women (**http://165.112.78.61/Infofax/treatwomen.html**)
- Lessons from Prevention Research (**http://165.112.78.61/Infofax/lessons.html**)

The following guideline, titled "Principles of Drug Addiction Treatment" is also offered by the NIDA in a booklet which presents 13 principles of effective drug abuse treatment, answers frequently asked questions, describes categories of treatment programs, and outlines scientifically validated approaches to treating drug addiction. These principles apply to MDMA dependence and other forms of drug abuse.

Principles of Effective Treatment

Treatment needs to be readily available. Because individuals who are addicted to drugs may be uncertain about entering treatment, taking advantage of opportunities when they are ready for treatment is crucial. Potential treatment applicants can be lost if treatment is not immediately available or is not readily accessible.

Effective treatment attends to multiple needs of the individual, not just his or her drug use. To be effective, treatment must address the individual's drug use and any associated medical, psychological, social, vocational, and legal problems.

An individual's treatment and services plan must be assessed continually and modified as necessary to ensure that the plan meets the person's changing needs. A patient may require varying combinations of services and treatment components during the course of treatment and recovery. In addition to counseling or psychotherapy, a patient at times may require medication, other medical services, family therapy, parenting instruction, vocational rehabilitation, and social and legal services. It is critical that the

treatment approach be appropriate to the individual's age, gender, ethnicity, and culture.

Remaining in treatment for an adequate period of time is critical for treatment effectiveness. The appropriate duration for an individual depends on his or her problems and needs. Research indicates that for most patients, the threshold of significant improvement is reached at about 3 months in treatment. After this threshold is reached, additional treatment can produce further progress toward recovery. Because people often leave treatment prematurely, programs should include strategies to engage and keep patients in treatment.

Counseling and Other Behavioral Therapies

Counseling (individual and/or group) and other behavioral therapies are critical components of effective treatment for addiction. In therapy, patients address issues of motivation, build skills to resist drug use, replace drug-using activities with constructive and rewarding non-drug-using activities, and improve problem-solving abilities. Behavioral therapy also facilitates interpersonal relationships and the individual's ability to function in the family and community.

Medications

Medications are an important element of treatment for many patients, especially when combined with counseling and other behavioral therapies. Methadone and levo-alpha-acetylmethadol (LAAM) are very effective in helping individuals addicted to heroin or other opiates stabilize their lives and reduce their illicit drug use. Naltrexone is also an effective medication for some opiate addicts and some patients with co-occurring alcohol dependence. For persons addicted to nicotine, a nicotine replacement product (such as patches or gum) or an oral medication (such as bupropion) can be an effective component of treatment. For patients with mental disorders, both behavioral treatments and medications can be critically important.

Patients with Mental Disorders

Addicted or drug-abusing individuals with coexisting mental disorders should have both disorders treated in an integrated way. Because addictive

disorders and mental disorders often occur in the same individual, patients presenting for either condition should be assessed and treated for the co-occurrence of the other type of disorder.

Medical Detoxification

Medical detoxification is only the first stage of addiction treatment and by itself does little to change long-term drug use. Medical detoxification safely manages the acute physical symptoms of withdrawal associated with stopping drug use. While detoxification alone is rarely sufficient to help addicts achieve long-term abstinence, for some individuals it is a strongly indicated precursor to effective drug addiction treatment.

Patient Cooperation

Treatment does not need to be voluntary to be effective. Strong motivation can facilitate the treatment process. Sanctions or enticements in the family, employment setting, or criminal justice system can increase significantly both treatment entry and retention rates and the success of drug treatment interventions.

Possible drug use during treatment must be monitored continuously. Lapses to drug use can occur during treatment. The objective monitoring of a patient's drug and alcohol use during treatment, such as through urinalysis or other tests, can help the patient withstand urges to use drugs. Such monitoring also can provide early evidence of drug use so that the individual's treatment plan can be adjusted. Feedback to patients who test positive for illicit drug use is an important element of monitoring.

Treatment programs should provide assessment for HIV/AIDS, hepatitis B and C, tuberculosis and other infectious diseases, and counseling to help patients modify or change behaviors that place themselves or others at risk of infection. Counseling can help patients avoid high-risk behavior. Counseling also can help people who are already infected manage their illness.

Recovery

Recovery from drug addiction can be a long-term process and frequently requires multiple episodes of treatment. As with other chronic illnesses,

relapses to drug use can occur during or after successful treatment episodes. Addicted individuals may require prolonged treatment and multiple episodes of treatment to achieve long-term abstinence and fully restored functioning. Participation in self-help support programs during and following treatment often is helpful in maintaining abstinence.

What Is Drug Addiction?

Drug addiction is a complex illness. It is characterized by compulsive, at times uncontrollable, drug craving, seeking, and use that persist even in the face of extremely negative consequences. For many people, drug addiction becomes chronic, with relapses possible even after long periods of abstinence.

The path to drug addiction begins with the act of taking drugs. Over time, a person's ability to choose not to take drugs can be compromised. Drug seeking becomes compulsive, in large part as a result of the effects of prolonged drug use on brain functioning and, thus, on behavior.

The compulsion to use drugs can take over the individual's life. Addiction often involves not only compulsive drug taking but also a wide range of dysfunctional behaviors that can interfere with normal functioning in the family, the workplace, and the broader community. Addiction also can place people at increased risk for a wide variety of other illnesses. These illnesses can be brought on by behaviors, such as poor living and health habits, that often accompany life as an addict, or because of toxic effects of the drugs themselves.

Because addiction has so many dimensions and disrupts so many aspects of an individual's life, treatment for this illness is never simple. Drug treatment must help the individual stop using drugs and maintain a drug-free lifestyle, while achieving productive functioning in the family, at work, and in society. Effective drug abuse and addiction treatment programs typically incorporate many components, each directed to a particular aspect of the illness and its consequences.

Three decades of scientific research and clinical practice have yielded a variety of effective approaches to drug addiction treatment. Extensive data document that drug addiction treatment is as effective as are treatments for most other similarly chronic medical conditions. In spite of scientific evidence that establishes the effectiveness of drug abuse treatment, many people believe that treatment is ineffective. In part, this is because of

unrealistic expectations. Many people equate addiction with simply using drugs and therefore expect that addiction should be cured quickly, and if it is not, treatment is a failure. In reality, because addiction is a chronic disorder, the ultimate goal of long-term abstinence often requires sustained and repeated treatment episodes.

Of course, not all drug abuse treatment is equally effective. Research also has revealed a set of overarching principles that characterize the most effective drug abuse and addiction treatments and their implementation.

Treatment varies depending on the type of drug and the characteristics of the patient. The best programs provide a combination of therapies and other services.

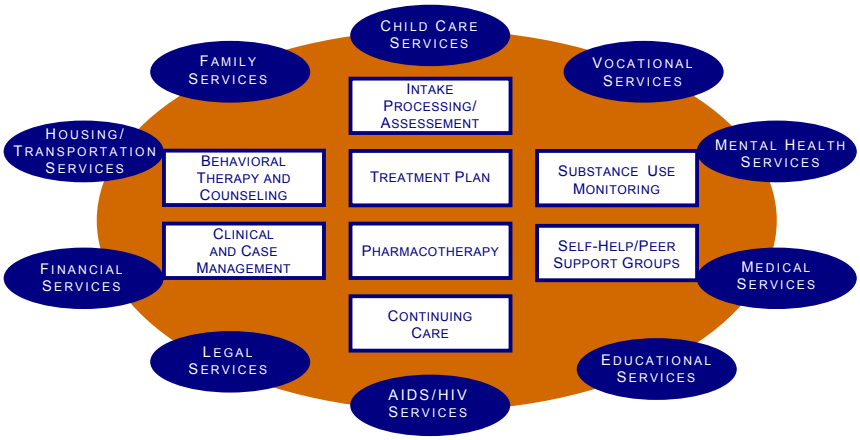
Frequently Asked Questions

What Is Drug Addiction Treatment?

- There are many addictive drugs, and treatments for specific drugs can differ. Treatment also varies depending on the characteristics of the patient.
- Problems associated with an individual's drug addiction can vary significantly. People who are addicted to drugs come from all walks of life. Many suffer from mental health, occupational, health, or social problems that make their addictive disorders much more difficult to treat. Even if there are few associated problems, the severity of addiction itself ranges widely among people.
- A variety of scientifically based approaches to drug addiction treatment exists. Drug addiction treatment can include behavioral therapy (such as counseling, cognitive therapy, or psychotherapy), medications, or their combination. Behavioral therapies offer people strategies for coping with their drug cravings, teach them ways to avoid drugs and prevent relapse, and help them deal with relapse if it occurs. When a person's drug-related behavior places him or her at higher risk for AIDS or other infectious diseases, behavioral therapies can help to reduce the risk of disease transmission. Case management and referral to other medical, psychological, and social services are crucial components of treatment for many patients. The best programs provide a combination of therapies and other services to meet the needs of the individual patient, which are shaped by such issues as age, race, culture, sexual orientation, gender,

pregnancy, parenting, housing, and employment, as well as physical and sexual abuse.

- Treatment medications, such as methadone, LAAM, and naltrexone, are available for individuals addicted to opiates. Nicotine preparations (patches, gum, nasal spray) and bupropion are available for individuals addicted to nicotine.
- The best treatment programs provide a combination of therapies and other services to meet the needs of the individual patient.



Components of Comprehensive Drug Abuse Treatment

- Medications, such as antidepressants, mood stabilizers, or neuroleptics, may be critical for treatment success when patients have co-occurring mental disorders, such as depression, anxiety disorder, bipolar disorder, or psychosis.
- Treatment can occur in a variety of settings, in many different forms, and for different lengths of time. Because drug addiction is typically a chronic disorder characterized by occasional relapses, a short-term, one-time treatment often is not sufficient. For many, treatment is a long-term process that involves multiple interventions and attempts at abstinence.

Why Can't Drug Addicts Quit on Their Own?

Nearly all addicted individuals believe in the beginning that they can stop using drugs on their own, and most try to stop without treatment. However, most of these attempts result in failure to achieve long-term abstinence. Research has shown that long-term drug use results in significant changes in brain function that persist long after the individual stops using drugs. These

drug-induced changes in brain function may have many behavioral consequences, including the compulsion to use drugs despite adverse consequences. This is the defining characteristic of addiction.

Understanding that addiction has such an important biological component may help explain an individual's difficulty in achieving and maintaining abstinence without treatment. Psychological stress from work or family problems, social cues (such as meeting individuals from one's drug-using past), or the environment (such as encountering streets, objects, or even smells associated with drug use) can interact with biological factors to hinder attainment of sustained abstinence and make relapse more likely. Research studies indicate that even the most severely addicted individuals can participate actively in treatment and that active participation is essential to good outcomes.

How Effective Is Drug Addiction Treatment?

In addition to stopping drug use, the goal of treatment is to return the individual to productive functioning in the family, workplace, and community. Measures of effectiveness typically include levels of criminal behavior, family functioning, employability, and medical condition. Overall, treatment of addiction is as successful as treatment of other chronic diseases, such as diabetes, hypertension, and asthma.

Treatment of addiction is as successful as treatment of other chronic diseases such as diabetes, hypertension, and asthma. According to several studies, drug treatment reduces drug use by 40 to 60 percent and significantly decreases criminal activity during and after treatment. For example, a study of therapeutic community treatment for drug offenders demonstrated that arrests for violent and nonviolent criminal acts were reduced by 40 percent or more. Methadone treatment has been shown to decrease criminal behavior by as much as 50 percent. Research shows that drug addiction treatment reduces the risk of HIV infection and that interventions to prevent HIV are much less costly than treating HIV-related illnesses. Treatment can improve the prospects for employment, with gains of up to 40 percent after treatment.

Although these effectiveness rates hold in general, individual treatment outcomes depend on the extent and nature of the patient's presenting problems, the appropriateness of the treatment components and related services used to address those problems, and the degree of active engagement of the patient in the treatment process.

How Long Does Drug Addiction Treatment Usually Last?

Individuals progress through drug addiction treatment at various speeds, so there is no predetermined length of treatment. However, research has shown unequivocally that good outcomes are contingent on adequate lengths of treatment. Generally, for residential or outpatient treatment, participation for less than 90 days is of limited or no effectiveness, and treatments lasting significantly longer often are indicated. For methadone maintenance, 12 months of treatment is the minimum, and some opiate-addicted individuals will continue to benefit from methadone maintenance treatment over a period of years.

Good outcomes are contingent on adequate lengths of treatment. Many people who enter treatment drop out before receiving all the benefits that treatment can provide. Successful outcomes may require more than one treatment experience. Many addicted individuals have multiple episodes of treatment, often with a cumulative impact.

What Helps People Stay in Treatment?

Since successful outcomes often depend upon retaining the person long enough to gain the full benefits of treatment, strategies for keeping an individual in the program are critical. Whether a patient stays in treatment depends on factors associated with both the individual and the program. Individual factors related to engagement and retention include motivation to change drug-using behavior, degree of support from family and friends, and whether there is pressure to stay in treatment from the criminal justice system, child protection services, employers, or the family. Within the program, successful counselors are able to establish a positive, therapeutic relationship with the patient. The counselor should ensure that a treatment plan is established and followed so that the individual knows what to expect during treatment. Medical, psychiatric, and social services should be available.

Whether a patient stays in treatment depends on factors associated with both the individual and the program. Since some individual problems (such as serious mental illness, severe cocaine or crack use, and criminal involvement) increase the likelihood of a patient dropping out, intensive treatment with a range of components may be required to retain patients who have these problems. The provider then should ensure a transition to continuing care or “aftercare” following the patient's completion of formal treatment.

Is the Use of Medications Like Methadone Simply Replacing One Drug Addiction with Another?

No. As used in maintenance treatment, methadone and LAAM are not heroin substitutes. They are safe and effective medications for opiate addiction that are administered by mouth in regular, fixed doses. Their pharmacological effects are markedly different from those of heroin.

Injected, snorted, or smoked heroin causes an almost immediate "rush" or brief period of euphoria that wears off very quickly, terminating in a "crash." The individual then experiences an intense craving to use more heroin to stop the crash and reinstate the euphoria. The cycle of euphoria, crash, and craving is repeated several times a day which leads to a cycle of addiction and behavioral disruption. These characteristics of heroin use result from the drug's rapid onset of action and its short duration of action in the brain. An individual who uses heroin multiple times per day subjects his or her brain and body to marked, rapid fluctuations as the opiate effects come and go. These fluctuations can disrupt a number of important bodily functions. Because heroin is illegal, addicted persons often become part of a volatile drug-using street culture characterized by hustling and crimes for profit.

Methadone and LAAM have far more gradual onsets of action than heroin, and as a result, patients stabilized on these medications do not experience any rush. In addition, both medications wear off much more slowly than heroin, so there is no sudden crash, and the brain and body are not exposed to the marked fluctuations seen with heroin use. Maintenance treatment with methadone or LAAM markedly reduces the desire for heroin. If an individual maintained on adequate, regular doses of methadone (once a day) or LAAM (several times per week) tries to take heroin, the euphoric effects of heroin will be significantly blocked. According to research, patients undergoing maintenance treatment do not suffer the medical abnormalities and behavioral destabilization that rapid fluctuations in drug levels cause in heroin addicts.

What Role Can the Criminal Justice System Play in the Treatment of Drug Addiction?

Increasingly, research is demonstrating that treatment for drug-addicted offenders during and after incarceration can have a significant beneficial effect upon future drug use, criminal behavior, and social functioning. The case for integrating drug addiction treatment approaches with the criminal

justice system is compelling. Combining prison- and community-based treatment for drug-addicted offenders reduces the risk of both recidivism to drug-related criminal behavior and relapse to drug use. For example, a recent study found that prisoners who participated in a therapeutic treatment program in the Delaware State Prison and continued to receive treatment in a work-release program after prison were 70 percent less likely than non-participants to return to drug use and incur rearrest.

Individuals who enter treatment under legal pressure have outcomes as favorable as those who enter treatment voluntarily. The majority of offenders involved with the criminal justice system are not in prison but are under community supervision. For those with known drug problems, drug addiction treatment may be recommended or mandated as a condition of probation. Research has demonstrated that individuals who enter treatment under legal pressure have outcomes as favorable as those who enter treatment voluntarily.

The criminal justice system refers drug offenders into treatment through a variety of mechanisms, such as diverting nonviolent offenders to treatment, stipulating treatment as a condition of probation or pretrial release, and convening specialized courts that handle cases for offenses involving drugs. Drug courts, another model, are dedicated to drug offender cases. They mandate and arrange for treatment as an alternative to incarceration, actively monitor progress in treatment, and arrange for other services to drug-involved offenders.

The most effective models integrate criminal justice and drug treatment systems and services. Treatment and criminal justice personnel work together on plans and implementation of screening, placement, testing, monitoring, and supervision, as well as on the systematic use of sanctions and rewards for drug abusers in the criminal justice system. Treatment for incarcerated drug abusers must include continuing care, monitoring, and supervision after release and during parole.

How Does Drug Addiction Treatment Help Reduce the Spread of HIV/AIDS and Other Infectious Diseases?

Many drug addicts, such as heroin or cocaine addicts and particularly injection drug users, are at increased risk for HIV/AIDS as well as other infectious diseases like hepatitis, tuberculosis, and sexually transmitted infections. For these individuals and the community at large, drug addiction treatment is disease prevention.

Drug injectors who do not enter treatment are up to six times more likely to become infected with HIV than injectors who enter and remain in treatment. Drug users who enter and continue in treatment reduce activities that can spread disease, such as sharing injection equipment and engaging in unprotected sexual activity. Participation in treatment also presents opportunities for screening, counseling, and referral for additional services. The best drug abuse treatment programs provide HIV counseling and offer HIV testing to their patients.

Where Do 12-Step or Self-Help Programs Fit into Drug Addiction Treatment?

Self-help groups can complement and extend the effects of professional treatment. The most prominent self-help groups are those affiliated with Alcoholics Anonymous (AA), Narcotics Anonymous (NA), and Cocaine Anonymous (CA), all of which are based on the 12-step model, and Smart Recovery®. Most drug addiction treatment programs encourage patients to participate in a self-help group during and after formal treatment.

How Can Families and Friends Make a Difference in the Life of Someone Needing Treatment?

Family and friends can play critical roles in motivating individuals with drug problems to enter and stay in treatment. Family therapy is important, especially for adolescents. Involvement of a family member in an individual's treatment program can strengthen and extend the benefits of the program.

Is Drug Addiction Treatment Worth Its Cost?

Drug addiction treatment is cost-effective in reducing drug use and its associated health and social costs. Treatment is less expensive than alternatives, such as not treating addicts or simply incarcerating addicts. For example, the average cost for 1 full year of methadone maintenance treatment is approximately $4,700 per patient, whereas 1 full year of imprisonment costs approximately $18,400 per person.

According to several conservative estimates, every $1 invested in addiction treatment programs yields a return of between $4 and $7 in reduced drug-related crime, criminal justice costs, and theft alone. When savings related to

health care are included, total savings can exceed costs by a ratio of 12 to 1. Major savings to the individual and society also come from significant drops in interpersonal conflicts, improvements in workplace productivity, and reductions in drug-related accidents.

Drug Addiction Treatment in the United States

Drug addiction is a complex disorder that can involve virtually every aspect of an individual's function in the family, at work, and in the community. Because of addiction's complexity and pervasive consequences, drug addiction treatment typically must involve many components. Some of those components focus directly on the individual's drug use. Others, like employment training, focus on restoring the addicted individual to productive membership in the family and society.

Treatment for drug abuse and addiction is delivered in many different settings, using a variety of behavioral and pharmacological approaches. In the United States, more than 11,000 specialized drug treatment facilities provide rehabilitation, counseling, behavioral therapy, medication, case management, and other types of services to persons with drug use disorders.

Because drug abuse and addiction are major public health problems, a large portion of drug treatment is funded by local, State, and Federal governments. Private and employer-subsidized health plans also may provide coverage for treatment of drug addiction and its medical consequences.

Drug abuse and addiction are treated in specialized treatment facilities and mental health clinics by a variety of providers, including certified drug abuse counselors, physicians, psychologists, nurses, and social workers. Treatment is delivered in outpatient, inpatient, and residential settings. Although specific treatment approaches often are associated with particular treatment settings, a variety of therapeutic interventions or services can be included in any given setting.

General Categories of Treatment Programs

Research studies on drug addiction treatment have typically classified treatment programs into several general types or modalities, which are described in the following text. Treatment approaches and individual

programs continue to evolve, and many programs in existence today do not fit neatly into traditional drug addiction treatment classifications.

Agonist Maintenance Treatment

Agonist maintenance treatment for opiate addicts usually is conducted in outpatient settings, often called methadone treatment programs. These programs use a long-acting synthetic opiate medication, usually methadone or LAAM, administered orally for a sustained period at a dosage sufficient to prevent opiate withdrawal, block the effects of illicit opiate use, and decrease opiate craving. Patients stabilized on adequate, sustained dosages of methadone or LAAM can function normally. They can hold jobs, avoid the crime and violence of the street culture, and reduce their exposure to HIV by stopping or decreasing injection drug use and drug-related high-risk sexual behavior.

Patients stabilized on opiate agonists can engage more readily in counseling and other behavioral interventions essential to recovery and rehabilitation. The best, most effective opiate agonist maintenance programs include individual and/or group counseling, as well as provision of, or referral to, other needed medical, psychological, and social services.

Narcotic Antagonist Treatment Using Naltrexone

Narcotic antagonist treatment using naltrexone for opiate addicts usually is conducted in outpatient settings although initiation of the medication often begins after medical detoxification in a residential setting. Naltrexone is a long-acting synthetic opiate antagonist with few side effects that is taken orally either daily or three times a week for a sustained period of time. Individuals must be medically detoxified and opiate-free for several days before naltrexone can be taken to prevent precipitating an opiate abstinence syndrome. When used this way, all the effects of self-administered opiates, including euphoria, are completely blocked. The theory behind this treatment is that the repeated lack of the desired opiate effects, as well as the perceived futility of using the opiate, will gradually over time result in breaking the habit of opiate addiction. Naltrexone itself has no subjective effects or potential for abuse and is not addicting. Patient noncompliance is a common problem. Therefore, a favorable treatment outcome requires that there also be a positive therapeutic relationship, effective counseling or therapy, and careful monitoring of medication compliance.

Patients stabilized on naltrexone can hold jobs, avoid crime and violence, and reduce their exposure to HIV. Many experienced clinicians have found naltrexone most useful for highly motivated, recently detoxified patients who desire total abstinence because of external circumstances, including impaired professionals, parolees, probationers, and prisoners in work-release status. Patients stabilized on naltrexone can function normally. They can hold jobs, avoid the crime and violence of the street culture, and reduce their exposure to HIV by stopping injection drug use and drug-related high-risk sexual behavior.

Outpatient Drug-Free Treatment

Outpatient drug-free treatment in the types and intensity of services offered. Such treatment costs less than residential or inpatient treatment and often is more suitable for individuals who are employed or who have extensive social supports. Low-intensity programs may offer little more than drug education and admonition. Other outpatient models, such as intensive day treatment, can be comparable to residential programs in services and effectiveness, depending on the individual patient's characteristics and needs. In many outpatient programs, group counseling is emphasized. Some outpatient programs are designed to treat patients who have medical or mental health problems in addition to their drug disorder.

Long-Term Residential Treatment

Long-term residential treatment provides care 24 hours per day, generally in non-hospital settings. The best-known residential treatment model is the therapeutic community (TC), but residential treatment may also employ other models, such as cognitive-behavioral therapy.

TCs are residential programs with planned lengths of stay of 6 to 12 months. TCs focus on the “resocialization” of the individual and use the program's entire “community,” including other residents, staff, and the social context, as active components of treatment. Addiction is viewed in the context of an individual's social and psychological deficits, and treatment focuses on developing personal accountability and responsibility and socially productive lives. Treatment is highly structured and can at times be confrontational, with activities designed to help residents examine damaging beliefs, self-concepts, and patterns of behavior and to adopt new, more harmonious and constructive ways to interact with others. Many TCs are

quite comprehensive and can include employment training and other support services on site.

Compared with patients in other forms of drug treatment, the typical TC resident has more severe problems, with more co-occurring mental health problems and more criminal involvement. Research shows that TCs can be modified to treat individuals with special needs, including adolescents, women, those with severe mental disorders, and individuals in the criminal justice system.

Short-Term Residential Programs

Short-term residential programs provide intensive but relatively brief residential treatment based on a modified 12-step approach. These programs were originally designed to treat alcohol problems, but during the cocaine epidemic of the mid-1980's, many began to treat illicit drug abuse and addiction. The original residential treatment model consisted of a 3 to 6 week hospital-based inpatient treatment phase followed by extended outpatient therapy and participation in a self-help group, such as Alcoholics Anonymous. Reduced health care coverage for substance abuse treatment has resulted in a diminished number of these programs, and the average length of stay under managed care review is much shorter than in early programs.

Medical Detoxification

Medical Detoxification is a process whereby individuals are systematically withdrawn from addicting drugs in an inpatient or outpatient setting, typically under the care of a physician. Detoxification is sometimes called a distinct treatment modality but is more appropriately considered a precursor of treatment, because it is designed to treat the acute physiological effects of stopping drug use. Medications are available for detoxification from opiates, nicotine, benzodiazepines, alcohol, barbiturates, and other sedatives. In some cases, particularly for the last three types of drugs, detoxification may be a medical necessity, and untreated withdrawal may be medically dangerous or even fatal.

Detoxification is not designed to address the psychological, social, and behavioral problems associated with addiction and therefore does not typically produce lasting behavioral changes necessary for recovery.

Detoxification is most useful when it incorporates formal processes of assessment and referral to subsequent drug addiction treatment.

Treating Criminal Justice-Involved Drug Abusers and Addicts

Research has shown that combining criminal justice sanctions with drug treatment can be effective in decreasing drug use and related crime. Individuals under legal coercion tend to stay in treatment for a longer period of time and do as well as or better than others not under legal pressure. Often, drug abusers come into contact with the criminal justice system earlier than other health or social systems, and intervention by the criminal justice system to engage the individual in treatment may help interrupt and shorten a career of drug use. Treatment for the criminal justice-involved drug abuser or drug addict may be delivered prior to, during, after, or in lieu of incarceration.

Combining criminal justice sanctions with drug treatment can be effective in decreasing drug use and related crime.

Prison-Based Treatment Programs

Offenders with drug disorders may encounter a number of treatment options while incarcerated, including didactic drug education classes, self-help programs, and treatment based on therapeutic community or residential milieu therapy models. The TC model has been studied extensively and can be quite effective in reducing drug use and recidivism to criminal behavior. Those in treatment should be segregated from the general prison population, so that the "prison culture" does not overwhelm progress toward recovery. As might be expected, treatment gains can be lost if inmates are returned to the general prison population after treatment. Research shows that relapse to drug use and recidivism to crime are significantly lower if the drug offender continues treatment after returning to the community.

Community-Based Treatment for Criminal Justice Populations

A number of criminal justice alternatives to incarceration have been tried with offenders who have drug disorders, including limited diversion programs, pretrial release conditional on entry into treatment, and conditional probation with sanctions. The drug court is a promising

approach. Drug courts mandate and arrange for drug addiction treatment, actively monitor progress in treatment, and arrange for other services to drug-involved offenders. Federal support for planning, implementation, and enhancement of drug courts is provided under the U.S. Department of Justice Drug Courts Program Office.

As a well-studied example, the Treatment Accountability and Safer Communities (TASC) program provides an alternative to incarceration by addressing the multiple needs of drug-addicted offenders in a community-based setting. TASC programs typically include counseling, medical care, parenting instruction, family counseling, school and job training, and legal and employment services. The key features of TASC include (1) coordination of criminal justice and drug treatment; (2) early identification, assessment, and referral of drug-involved offenders; (3) monitoring offenders through drug testing; and (4) use of legal sanctions as inducements to remain in treatment.

Scientifically-Based Approaches to Drug Addiction Treatment

This section presents several examples of treatment approaches and components that have been developed and tested for efficacy through research supported by the National Institute on Drug Abuse (NIDA). Each approach is designed to address certain aspects of drug addiction and its consequences for the individual, family, and society. The approaches are to be used to supplement or enhance (not replace) existing treatment programs.

This section is not a complete list of efficacious, scientifically-based treatment approaches. Additional approaches are under development as part of NIDA's continuing support of treatment research.

Relapse Prevention

Relapse prevention, a cognitive-behavioral therapy, was developed for the treatment of problem drinking and adapted later for cocaine addicts. Cognitive-behavioral strategies are based on the theory that learning processes play a critical role in the development of maladaptive behavioral patterns. Individuals learn to identify and correct problematic behaviors. Relapse prevention encompasses several cognitive-behavioral strategies that facilitate abstinence as well as provide help for people who experience relapse.

The relapse prevention approach to the treatment of cocaine addiction consists of a collection of strategies intended to enhance self-control. Specific techniques include exploring the positive and negative consequences of continued use, self-monitoring to recognize drug cravings early on and to identify high-risk situations for use, and developing strategies for coping with and avoiding high-risk situations and the desire to use. A central element of this treatment is anticipating the problems patients are likely to meet and helping them develop effective coping strategies.

Research indicates that the skills individuals learn through relapse prevention therapy remain after the completion of treatment. In one study, most people receiving this cognitive-behavioral approach maintained the gains they made in treatment throughout the year following treatment.

The Matrix Model

The Matrix model provides a framework for engaging stimulant abusers in treatment and helping them achieve abstinence. Patients learn about issues critical to addiction and relapse, receive direction and support from a trained therapist, become familiar with self-help programs, and are monitored for drug use by urine testing. The program includes education for family members affected by the addiction.

The therapist functions simultaneously as teacher and coach, fostering a positive, encouraging relationship with the patient and using that relationship to reinforce positive behavior change. The interaction between the therapist and the patient is realistic and direct but not confrontational or parental. Therapists are trained to conduct treatment sessions in a way that promotes the patient's self-esteem, dignity, and self-worth. A positive relationship between patient and therapist is a critical element for patient retention.

Treatment materials draw heavily on other tested treatment approaches. Thus, this approach includes elements pertaining to the areas of relapse prevention, family and group therapies, drug education, and self-help participation. Detailed treatment manuals contain work sheets for individual sessions; other components include family educational groups, early recovery skills groups, relapse prevention groups, conjoint sessions, urine tests, 12-step programs, relapse analysis, and social support groups.

A number of projects have demonstrated that participants treated with the Matrix model demonstrate statistically significant reductions in drug and

alcohol use, improvements in psychological indicators, and reduced risky sexual behaviors associated with HIV transmission. These reports, along with evidence suggesting comparable treatment response for methamphetamine users and cocaine users and demonstrated efficacy in enhancing naltrexone treatment of opiate addicts, provide a body of empirical support for the use of the model.

Supportive-Expressive Psychotherapy

Supportive-expressive psychotherapy is a time-limited, focused psychotherapy that has been adapted for heroin- and cocaine-addicted individuals. The therapy has two main components:

- Supportive techniques to help patients feel comfortable in discussing their personal experiences.
- Expressive techniques to help patients identify and work through interpersonal relationship issues.

Special attention is paid to the role of drugs in relation to problem feelings and behaviors, and how problems may be solved without recourse to drugs.

The efficacy of individual supportive-expressive psychotherapy has been tested with patients in methadone maintenance treatment who had psychiatric problems. In a comparison with patients receiving only drug counseling, both groups fared similarly with regard to opiate use, but the supportive-expressive psychotherapy group had lower cocaine use and required less methadone. Also, the patients who received supportive-expressive psychotherapy maintained many of the gains they had made. In an earlier study, supportive-expressive psychotherapy, when added to drug counseling, improved outcomes for opiate addicts in methadone treatment with moderately severe psychiatric problems.

Individualized Drug Counseling

Individualized drug counseling focuses directly on reducing or stopping the addict's illicit drug use. It also addresses related areas of impaired functioning such as employment status, illegal activity, family/social relations as well as the content and structure of the patient's recovery program. Through its emphasis on short-term behavioral goals, individualized drug counseling helps the patient develop coping strategies and tools for abstaining from drug use and then maintaining abstinence. The

addiction counselor encourages 12-step participation and makes referrals for needed supplemental medical, psychiatric, employment, and other services. Individuals are encouraged to attend sessions one or two times per week.

In a study that compared opiate addicts receiving only methadone to those receiving methadone coupled with counseling, individuals who received only methadone showed minimal improvement in reducing opiate use. The addition of counseling produced significantly more improvement. The addition of onsite medical/psychiatric, employment, and family services further improved outcomes.

In another study with cocaine addicts, individualized drug counseling, together with group drug counseling, was quite effective in reducing cocaine use. Thus, it appears that this approach has great utility with both heroin and cocaine addicts in outpatient treatment.

Motivational Enhancement Therapy

Motivational enhancement therapy is a client-centered counseling approach for initiating behavior change by helping clients to resolve ambivalence about engaging in treatment and stopping drug use. This approach employs strategies to evoke rapid and internally motivated change in the client, rather than guiding the client stepwise through the recovery process. This therapy consists of an initial assessment battery session, followed by two to four individual treatment sessions with a therapist.

The first treatment session focuses on providing feedback generated from the initial assessment battery to stimulate discussion regarding personal substance use and to elicit self-motivational statements. Motivational interviewing principles are used to strengthen motivation and build a plan for change. Coping strategies for high-risk situations are suggested and discussed with the client. In subsequent sessions, the therapist monitors change, reviews cessation strategies being used, and continues to encourage commitment to change or sustained abstinence. Clients are sometimes encouraged to bring a significant other to sessions. This approach has been used successfully with alcoholics and with marijuana-dependent individuals.

Behavioral Therapy

Behavioral therapy for Adolescents incorporates the principle that unwanted behavior can be changed by clear demonstration of the desired behavior and consistent reward of incremental steps toward achieving it. Therapeutic activities include fulfilling specific assignments, rehearsing desired behaviors, and recording and reviewing progress, with praise and privileges given for meeting assigned goals. Urine samples are collected regularly to monitor drug use. The therapy aims to equip the patient to gain three types of control:

- Stimulus Control helps patients avoid situations associated with drug use and learn to spend more time in activities incompatible with drug use.
- Urge Control helps patients recognize and change thoughts, feelings, and plans that lead to drug use.
- Social Control involves family members and other people important in helping patients avoid drugs. A parent or significant other attends treatment sessions when possible and assists with therapy assignments and reinforcing desired behavior.

According to research studies, this therapy helps adolescents become drug free and increases their ability to remain drug free after treatment ends. Adolescents also show improvement in several other areas such as employment/school attendance, family relationships, depression, institutionalization, and alcohol use. Such favorable results are attributed largely to including family members in therapy and rewarding drug abstinence as verified by urinalysis.

Multidimensional Family Therapy (MDFT) for Adolescents

Multidimensional family therapy (MDFT) for adolescents is an outpatient family-based drug abuse treatment for teenagers. MDFT views adolescent drug use in terms of a network of influences (that is, individual, family, peer, community) and suggests that reducing unwanted behavior and increasing desirable behavior occur in multiple ways in different settings. Treatment includes individual and family sessions held in the clinic, in the home, or with family members at the family court, school, or other community locations.

During individual sessions, the therapist and adolescent work on important developmental tasks, such as developing decision-making, negotiation, and problem-solving skills. Teenagers acquire skills in communicating their

thoughts and feelings to deal better with life stressors, and vocational skills. Parallel sessions are held with family members. Parents examine their particular parenting style, learning to distinguish influence from control and to have a positive and developmentally appropriate influence on their child.

Multisystemic Therapy (MST)

Multisystemic therapy (MST) addresses the factors associated with serious antisocial behavior in children and adolescents who abuse drugs. These factors include characteristics of the adolescent (for example, favorable attitudes toward drug use), the family (poor discipline, family conflict, parental drug abuse), peers (positive attitudes toward drug use), school (dropout, poor performance), and neighborhood (criminal subculture). By participating in intense treatment in natural environments (homes, schools, and neighborhood settings) most youths and families complete a full course of treatment. MST significantly reduces adolescent drug use during treatment and for at least 6 months after treatment. Reduced numbers of incarcerations and out-of-home placements of juveniles offset the cost of providing this intensive service and maintaining the clinicians' low caseloads.

Combined Behavioral and Nicotine Replacement Therapy for Nicotine Addiction

Combined behavioral and nicotine replacement therapy for nicotine addiction consists of two main components:

- The transdermal nicotine patch or nicotine gum reduces symptoms of withdrawal, producing better initial abstinence.
- The behavioral component concurrently provides support and reinforcement of coping skills, yielding better long-term outcomes.

Through behavioral skills training, patients learn to avoid high-risk situations for smoking relapse early on and later to plan strategies to cope with such situations. Patients practice skills in treatment, social, and work settings. They learn other coping techniques, such as cigarette refusal skills, assertiveness, and time management. The combined treatment is based on the rationale that behavioral and pharmacological treatments operate by different yet complementary mechanisms that produce potentially additive effects.

Community Reinforcement Approach (CRA)

Community reinforcement approach (CRA) plus vouchers is an intensive 24-week outpatient therapy for treatment of cocaine addiction. The treatment goals are twofold:

- To achieve cocaine abstinence long enough for patients to learn new life skills that will help sustain abstinence.
- To reduce alcohol consumption for patients whose drinking is associated with cocaine use.

Patients attend one or two individual counseling sessions per week, where they focus on improving family relations, learning a variety of skills to minimize drug use, receiving vocational counseling, and developing new recreational activities and social networks. Those who also abuse alcohol receive clinic-monitored disulfiram (Antabuse) therapy. Patients submit urine samples two or three times each week and receive vouchers for cocaine-negative samples. The value of the vouchers increases with consecutive clean samples. Patients may exchange vouchers for retail goods that are consistent with a cocaine-free lifestyle.

This approach facilitates patients' engagement in treatment and systematically aids them in gaining substantial periods of cocaine abstinence. The approach has been tested in urban and rural areas and used successfully in outpatient detoxification of opiate-addicted adults and with inner-city methadone maintenance patients who have high rates of intravenous cocaine abuse.

Voucher-Based Reinforcement Therapy in Methadone Maintenance Treatment

Voucher-based reinforcement therapy in Methadone maintenance treatment helps patients achieve and maintain abstinence from illegal drugs by providing them with a voucher each time they provide a drug-free urine sample. The voucher has monetary value and can be exchanged for goods and services consistent with the goals of treatment. Initially, the voucher values are low, but their value increases with the number of consecutive drug-free urine specimens the individual provides. Cocaine- or heroin-positive urine specimens reset the value of the vouchers to the initial low value. The contingency of escalating incentives is designed specifically to reinforce periods of sustained drug abstinence.

Studies show that patients receiving vouchers for drug-free urine samples achieved significantly more weeks of abstinence and significantly more weeks of sustained abstinence than patients who were given vouchers independent of urinalysis results. In another study, urinalyses positive for heroin decreased significantly when the voucher program was started and increased significantly when the program was stopped.

Day Treatment with Abstinence Contingencies and Vouchers

Day treatment with abstinence contingencies and vouchers was developed to treat homeless crack addicts. For the first 2 months, participants must spend 5.5 hours daily in the program, which provides lunch and transportation to and from shelters. Interventions include individual assessment and goal setting, individual and group counseling, multiple psycho-educational groups (for example, didactic groups on community resources, housing, cocaine, and HIV/AIDS prevention; establishing and reviewing personal rehabilitation goals; relapse prevention; weekend planning), and patient-governed community meetings during which patients review contract goals and provide support and encouragement to each other. Individual counseling occurs once a week, and group therapy sessions are held three times a week.

After 2 months of day treatment and at least 2 weeks of abstinence, participants graduate to a 4-month work component that pays wages that can be used to rent inexpensive, drug-free housing. A voucher system also rewards drug-free related social and recreational activities.

This innovative day treatment was compared with treatment consisting of twice-weekly individual counseling and 12-step groups, medical examinations and treatment, and referral to community resources for housing and vocational services. Innovative day treatment followed by work and housing dependent upon drug abstinence had a more positive effect on alcohol use, cocaine use, and days homeless.

Resources

The National Institute on Drug Abuse[14]

General inquiries:

- NIDA Public Information Office, Telephone: 301-443-1124.

Inquiries about NIDA's treatment research activities:

- Division of Treatment Research and Development (301) 443-6173 (for questions regarding behavioral therapies and medications);
- Division of Epidemiology, Services and Prevention Research (301) 443-4060 (for questions regarding access to treatment, organization, management, financing, effectiveness and cost-effectiveness).

Center for Substance Abuse Treatment (CSAT)

CSAT, a part of the Substance Abuse and Mental Health Services Administration, is responsible for supporting treatment services through block grants and developing knowledge about effective drug treatment, disseminating the findings to the field, and promoting their adoption. CSAT also operates the National Treatment Referral 24-hour Hotline (1-800-662-HELP) which offers information and referral to people seeking treatment programs and other assistance. CSAT publications are available through the National Clearinghouse on Alcohol and Drug Information (1-800-729-6686). Additional information can be found at CSAT's Web Site: **http://www.samhsa.gov/csat**.

Selected NIDA Educational Resources on Drug Addiction Treatment

The following are available from the National Clearinghouse on Alcohol and Drug Information (NCADI), the National Technical Information Service (NTIS), or the Government Printing Office (GPO). To order, refer to the NCADI (1-800-729-6686), NTIS (1-800-553-6847), or GPO (202-512-1800) number provided with the resource description.

[14] The NIDA: **http://www.nida.nih.gov**.

Manuals and Clinical Reports

- **Measuring and Improving Cost, Cost-Effectiveness, and Cost-Benefit for Substance Abuse Treatment Programs (1999).** Offers substance abuse treatment program managers tools with which to calculate the costs of their programs and investigate the relationship between those costs and treatment outcomes. NCADI # BKD340. Available online at **http://www.nida.nih.gov/IMPCOST/IMPCOSTIndex.html**.
- **Mental Health Assessment and Diagnosis of Substance Abusers: Clinical Report Series (1994).** Provides detailed descriptions of psychiatric disorders that can occur among drug-abusing clients. NCADI # BKD148.
- **Relapse Prevention: Clinical Report Series (1994).** Discusses several major issues to relapse prevention. Provides an overview of factors and experiences that can lead to relapse. Reviews general strategies for preventing relapses, and describes four specific approaches in detail. Outlines administrative issues related to implementing a relapse prevention program. NCADI # BKD147.
- **Addiction Severity Index Package (1993).** Provides a structured clinical interview designed to collect information about substance use and functioning in life areas from adult clients seeking drug abuse treatment. Includes a handbook for program administrators, a resource manual, two videotapes, and a training facilitator's manual. NTIS # AVA19615VNB2KUS. $150.

Research Monographs

- **Beyond the Therapeutic Alliance: Keeping the Drug-Dependent Individual in Treatment (Research Monograph 165) (1997).** Reviews current treatment research on the best ways to retain patients in drug abuse treatment. NTIS # 97-181606. $47; GPO # 017-024-01608-0. $17. **http://www.nida.nih.gov/pdf/monographs/monograph165/download165.html**.
- Treatment of Drug-Exposed Women and Children: Advances in Research Methodology (Research Monograph 166) (1997). Presents experiences, products, and procedures of NIDA-supported Treatment Research Demonstration Program projects. NCADI # M166; NTIS # 96-179106. $75; GPO # 017-01592-0. $13. Available online at **http://www.nida.nih.gov/pdf/monographs/monograph166/download.html**.

- **Treatment of Drug-Dependent Individuals With Comorbid Mental Disorders (Research Monograph 172) (1997).** Promotes effective treatment by reporting state-of-the-art treatment research on individuals with comorbid mental and addictive disorders and research on HIV-related issues among people with comorbid conditions. NCADI # M172; NTIS # 97-181580. $41; GPO # 017-024-01605. $10. Available online at **http://www.nida.nih.gov/pdf/monographs/monograph172/download172.html**
- **Medications Development for the Treatment of Cocaine Dependence: Issues in Clinical Efficacy Trials (Research Monograph 175) (1998).** A state-of-the-art handbook for clinical investigators, pharmaceutical scientists, and treatment researchers. NCADI # M175. **http://www.nida.nih.gov/pdf/monographs/monograph175/download175.html**

Videos

- **Adolescent Treatment Approaches (1991).** Emphasizes the importance of pinpointing and addressing individual problem areas, such as sexual abuse, peer pressure, and family involvement in treatment. Running time: 25 min. NCADI # VHS40. $12.50.
- **NIDA Technology Transfer Series: Assessment (1991).** Shows how to use a number of diagnostic instruments as well as how to assess the implementation and effectiveness of the plan during various phases of the patient's treatment. Running time: 22 min. NCADI # VHS38. $12.50.
- **Drug Abuse Treatment in Prison: A New Way Out (1995).** Portrays two comprehensive drug abuse treatment approaches that have been effective with men and women in State and Federal Prisons. Running time: 23 min. NCADI # VHS72. $12.50.
- **Dual Diagnosis (1993).** Focuses on the problem of mental illness in drug-abusing and drug-addicted populations, and examines various approaches useful for treating dual-diagnosed clients. Running time: 27 min. NCADI # VHS58. $12.50.
- **LAAM: Another Option for Maintenance Treatment of Opiate Addiction (1995).** Shows how LAAM can be used to meet the opiate treatment needs of individual clients from the provider and patient perspectives. Running time: 16 min. NCADI # VHS73. $12.50.
- **Methadone: Where We Are (1993).** Examines issues such as the use and effectiveness of methadone as a treatment, biological effects of methadone, the role of the counselor in treatment, and societal attitudes

toward methadone treatment and patients. Running time: 24 min. NCADI # VHS59. $12.50.

- **Relapse Prevention (1991).** Helps practitioners understand the common phenomenon of relapse to drug use among patients in treatment. Running time: 24 min. NCADI # VHS37. $12.50.
- **Treatment Issues for Women (1991).** Assists treatment counselors help female patients to explore relationships with their children, with men, and with other women. Running time: 22 min. NCADI # VHS39. $12.50.
- **Treatment Solutions (1999).** Describes the latest developments in treatment research and emphasizes the benefits of drug abuse treatment, not only to the patient, but also to the greater community. Running time: 19 min. NCADI # DD110. $12.50.
- **Program Evaluation Package (1993).** A practical resource for treatment program administrators and key staff. Includes an overview and case study manual, a guide for evaluation, a resource guide, and a pamphlet. NTIS # 95-167268/BDL. $86.50.
- **Relapse Prevention Package (1993).** Examines two effective relapse prevention models, the Recovery Training and Self-Help (RTSH) program and the Cue Extinction model. NTIS # 95-167250. $189; GPO # 017-024-01555-5. $57. (Sold by GPO as a set of 7 books)

Other Federal Resources

- **The National Clearinghouse for Alcohol and Drug Information (NCADI).** NIDA publications and treatment materials along with publications from other Federal agencies are available from this information source. Staff provide assistance in English and Spanish, and have TDD capability. Phone: 1-800-729-6686. Website: **http://www.health.org**.
- **The National Institute of Justice (NIJ).** As the research agency of the Department of Justice, NIJ supports research, evaluation, and demonstration programs relating to drug abuse in the contexts of crime and the criminal justice system. For information, including a wealth of publications, contact the National Criminal Justice Reference Service by telephone (1-800-851-3420 or 1-301-519-5500) or on the World Wide Web (**http://www.ojp.usdoj.gov/nij**).

More Guideline Sources

The guideline above on MDMA dependence is only one example of the kind of material that you can find online and free of charge. The remainder of this chapter will direct you to other sources which either publish or can help you find additional guidelines on topics related to MDMA dependence. Many of the guidelines listed below address topics that may be of particular relevance to your specific situation or of special interest to only some patients with MDMA dependence. Due to space limitations these sources are listed in a concise manner. Do not hesitate to consult the following sources by either using the Internet hyperlink provided, or, in cases where the contact information is provided, contacting the publisher or author directly.

Topic Pages: MEDLINEplus

For patients wishing to go beyond guidelines published by specific Institutes of the NIH, the National Library of Medicine has created a vast and patient-oriented healthcare information portal called MEDLINEplus. Within this Internet-based system are "health topic pages." You can think of a health topic page as a guide to patient guides. To access this system, log on to **http://www.nlm.nih.gov/medlineplus/healthtopics.html**.

If you do not find topics of interest when browsing health topic pages, then you can choose to use the advanced search utility of MEDLINEplus at **http://www.nlm.nih.gov/medlineplus/advancedsearch.html**. This utility is similar to the NIH Search Utility, with the exception that it only includes material linked within the MEDLINEplus system (mostly patient-oriented information). It also has the disadvantage of generating unstructured results. We recommend, therefore, that you use this method only if you have a very targeted search.

The National Guideline Clearinghouse™

The National Guideline Clearinghouse™ offers hundreds of evidence-based clinical practice guidelines published in the United States and other countries. You can search their site located at **http://www.guideline.gov** by using the keyword "MDMA dependence" or synonyms. The following was recently posted:

- **Treatment for stimulant use disorders.**

  Source: Substance Abuse and Mental Health Services Administration (U.S.).; 1999; Various pagings

  http://www.guideline.gov/FRAMESETS/guideline_fs.asp?guideline=001766&sSearch_string=MDMA+dependence

Healthfinder™

Healthfinder™ is an additional source sponsored by the U.S. Department of Health and Human Services which offers links to hundreds of other sites that contain healthcare information. This Web site is located at **http://www.healthfinder.gov**. Again, keyword searches can be used to find guidelines. The following was recently found in this database:

- **How Are Alcohol and Drugs Affecting Your Life? – A Self-Test For Teenagers**

  Summary: This online self-test can help teens decide if they are at risk for developing alcoholism and/or dependence on another drug.

  Source: National Council on Alcoholism and Drug Dependence, Inc.

  http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=5667

- **Who's Got the Power? You or Drugs**

  Summary: In

  Source: National Council on Alcoholism and Drug Dependence, Inc.

  http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=5666

The NIH Search Utility

After browsing the references listed at the beginning of this chapter, you may want to explore the NIH Search Utility. This allows you to search for documents on over 100 selected Web sites that comprise the NIH-WEB-SPACE. Each of these servers is "crawled" and indexed on an ongoing basis. Your search will produce a list of various documents, all of which will relate in some way to MDMA dependence. The drawbacks of this approach are that the information is not organized by theme and that the references are often a mix of information for professionals and patients. Nevertheless, a

large number of the listed Web sites provide useful background information. We can only recommend this route, therefore, for relatively rare or specific disorders, or when using highly targeted searches. To use the NIH search utility, visit the following Web page: **http://search.nih.gov/index.html**.

Additional Web Sources

A number of Web sites that often link to government sites are available to the public. These can also point you in the direction of essential information. The following is a representative sample:

- AOL: **http://search.aol.com/cat.adp?id=168&layer=&from=subcats**
- drkoop.com®: **http://www.drkoop.com/conditions/ency/index.html**
- Family Village: **http://www.familyvillage.wisc.edu/specific.htm**
- Google: **http://directory.google.com/Top/Health/Conditions_and_Diseases/**
- Med Help International: **http://www.medhelp.org/HealthTopics/A.html**
- Open Directory Project: **http://dmoz.org/Health/Conditions_and_Diseases/**
- Yahoo.com: **http://dir.yahoo.com/Health/Diseases_and_Conditions/**
- WebMD®Health: **http://my.webmd.com/health_topics**

Vocabulary Builder

The material in this chapter may have contained a number of unfamiliar words. The following Vocabulary Builder introduces you to terms used in this chapter that have not been covered in the previous chapter:

Acne: An inflammatory disease of the pilosebaceous unit, the specific type usually being indicated by a modifying term; frequently used alone to designate common acne, or acne vulgaris. [EU]

Agonist: A chemical compound that mimics the action of a natural neurotransmitter. [NIH]

Amphetamines: Analogs or derivatives of AMPHETAMINE. Many are sympathomimetics and central nervous system stimulators causing excitation, vasopression, bronchodilation, and to varying degrees, anorexia, analepsis, nasal decongestion, and some smooth muscle relaxation. [NIH]

Antidepressants: A group of drugs used in treating depressive disorders. [NIH]

Anxiety: The unpleasant emotional state consisting of psychophysiological responses to anticipation of unreal or imagined danger, ostensibly resulting from unrecognized intrapsychic conflict. Physiological concomitants include increased heart rate, altered respiration rate, sweating, trembling, weakness, and fatigue; psychological concomitants include feelings of impending danger, powerlessness, apprehension, and tension. [EU]

Barbiturate: A type of central nervous system (CNS) depressant often prescribed to promote sleep. [NIH]

Benign: Not malignant; not recurrent; favourable for recovery. [EU]

Benzodiazepine: A type of CNS depressant prescribed to relieve anxiety; among the most widely prescribed medications, including Valium and Librium. [NIH]

Bupropion: A unicyclic, aminoketone antidepressant. The mechanism of its therapeutic actions is not well understood, but it does appear to block dopamine uptake. The hydrochloride is available as an aid to smoking cessation treatment. [NIH]

Cardiovascular: Pertaining to the heart and blood vessels. [EU]

Chronic: Persisting over a long period of time. [EU]

Cocaine: An alkaloid ester extracted from the leaves of plants including coca. It is a local anesthetic and vasoconstrictor and is clinically used for that purpose, particularly in the eye, ear, nose, and throat. It also has powerful central nervous system effects similar to the amphetamines and is a drug of abuse. Cocaine, like amphetamines, acts by multiple mechanisms on brain catecholaminergic neurons; the mechanism of its reinforcing effects is thought to involve inhibition of dopamine uptake. [NIH]

Confusion: Disturbed orientation in regard to time, place, or person, sometimes accompanied by disordered consciousness. [EU]

Crack: Short term for a smokable form of cocaine. [NIH]

Craving: A powerful, often uncontrollable desire for drugs. [NIH]

Cues: Signals for an action; that specific portion of a perceptual field or pattern of stimuli to which a subject has learned to respond. [NIH]

Dehydration: The condition that results from excessive loss of body water. Called also anhydration, deaquation and hypohydration. [EU]

Detoxification: A process of allowing the body to rid itself of a drug while managing the symptoms of withdrawal; often the first step in a drug treatment program. [NIH]

Dopamine: A neurotransmitter present in regions of the brain that regulate

movement, emotion, motivation, and feeling of pleasure. [NIH]

Epidemic: Occurring suddenly in numbers clearly in excess of normal expectancy; said especially of infectious diseases but applied also to any disease, injury, or other health-related event occurring in such outbreaks. [EU]

Euphoria: An exaggerated feeling of physical and mental well-being, especially when not justified by external reality. Euphoria may be induced by drugs such as opioids, amphetamines, and alcohol and is also a feature of mania. [EU]

Hallucinogen: A drug that produces hallucinations - distortion in perception of sights and sounds - and disturbances in emotion, judgment, and memory. [NIH]

Hepatitis: Inflammation of the liver. [EU]

Hypertension: Persistently high arterial blood pressure. Various criteria for its threshold have been suggested, ranging from 140 mm. Hg systolic and 90 mm. Hg diastolic to as high as 200 mm. Hg systolic and 110 mm. Hg diastolic. Hypertension may have no known cause (essential or idiopathic h.) or be associated with other primary diseases (secondary h.). [EU]

Hyperthermia: Abnormally high body temperature, especially that induced for therapeutic purposes. [EU]

Incarceration: Abnormal retention or confinement of a body part; specifically : a constriction of the neck of a hernial sac so that the hernial contents become irreducible. [EU]

Institutionalization: The caring for individuals in institutions and their adaptation to routines characteristic of the institutional environment, and/or their loss of adaptation to life outside the institution. [NIH]

Intravenous: Within a vein or veins. [EU]

Ketamine: Dissociative anesthetic abused for its mind-altering effects and sometimes used to facilitate sexual assault. [NIH]

LAAM: An approved medication for the treatment of opioid addiction, taken 3 to 4 times a week. [NIH]

Malignant: Tending to become progressively worse and to result in death. Having the properties of anaplasia, invasion, and metastasis; said of tumours. [EU]

Methadone: A long-acting synthetic medication shown to be effective in treating heroin addiction. [NIH]

Methamphetamine: A central nervous system stimulant and sympathomimetic with actions and uses similar to dextroamphetamine. The smokable form is a drug of abuse and is referred to as crank, crystal, crystal meth, ice, and speed. [NIH]

Naltrexone: Derivative of noroxymorphone that is the N-cyclopropylmethyl congener of naloxone. It is a narcotic antagonist that is effective orally, longer lasting and more potent than naloxone, and has been proposed for the treatment of heroin addiction. The FDA has approved naltrexone for the treatment of alcohol dependence. [NIH]

Nausea: An unpleasant sensation, vaguely referred to the epigastrium and abdomen, and often culminating in vomiting. [EU]

Neuroleptic: A term coined to refer to the effects on cognition and behaviour of antipsychotic drugs, which produce a state of apathy, lack of initiative, and limited range of emotion and in psychotic patients cause a reduction in confusion and agitation and normalization of psychomotor activity. [EU]

Neuron: A nerve cell in the brain. [NIH]

Neurotoxic: Poisonous or destructive to nerve tissue. [EU]

Neurotransmitter: Chemical compound that acts as a messenger to carry signals or stimuli from one nerve cell to another. [NIH]

Nicotine: An alkaloid derived from the tobacco plant that is responsible for smoking's psychoactive and addictive effects; is toxic at high doses but can be safe and effective as medicine at lower doses. [NIH]

Opiate: A remedy containing or derived from opium; also any drug that induces sleep. [EU]

Paralysis: Loss or impairment of motor function in a part due to lesion of the neural or muscular mechanism; also by analogy, impairment of sensory function (sensory paralysis). In addition to the types named below, paralysis is further distinguished as traumatic, syphilitic, toxic, etc., according to its cause; or as obturator, ulnar, etc., according to the nerve part, or muscle specially affected. [EU]

Paranoia: A psychotic disorder marked by persistent delusions of persecution or delusional jealousy and behaviour like that of the paranoid personality, such as suspiciousness, mistrust, and combativeness. It differs from paranoid schizophrenia, in which hallucinations or formal thought disorder are present, in that the delusions are logically consistent and that there are no other psychotic features. The designation in DSM III-R is delusional (paranoid) disorders, with five types : persecutory, jealous, erotomanic, somatic, and grandiose. [EU]

Precursor: Something that precedes. In biological processes, a substance from which another, usually more active or mature substance is formed. In clinical medicine, a sign or symptom that heralds another. [EU]

Prenatal: Existing or occurring before birth, with reference to the fetus. [EU]

Psychiatric: Pertaining to or within the purview of psychiatry. [EU]

Psychotherapy: A generic term for the treatment of mental illness or emotional disturbances primarily by verbal or nonverbal communication. [NIH]

Sedative: 1. allaying activity and excitement. 2. an agent that allays excitement. [EU]

Seizures: Clinical or subclinical disturbances of cortical function due to a sudden, abnormal, excessive, and disorganized discharge of brain cells. Clinical manifestations include abnormal motor, sensory and psychic phenomena. Recurrent seizures are usually referred to as EPILEPSY or "seizure disorder." [NIH]

Serotonin: A neurotransmitter that causes a very broad range of effects on perception, movement, and the emotions by modulating the actions of other neurotransmitters in most parts of the brain. [NIH]

Steroid: A group name for lipids that contain a hydrogenated cyclopentanoperhydrophenanthrene ring system. Some of the substances included in this group are progesterone, adrenocortical hormones, the gonadal hormones, cardiac aglycones, bile acids, sterols (such as cholesterol), toad poisons, saponins, and some of the carcinogenic hydrocarbons. [EU]

Stimulant: 1. producing stimulation; especially producing stimulation by causing tension on muscle fibre through the nervous tissue. 2. an agent or remedy that produces stimulation. [EU]

Suppository: A medicated mass adapted for introduction into the rectal, vaginal, or urethral orifice of the body, suppository bases are solid at room temperature but melt or dissolve at body temperature. Commonly used bases are cocoa butter, glycerinated gelatin, hydrogenated vegetable oils, polyethylene glycols of various molecular weights, and fatty acid esters of polyethylene glycol. [EU]

Transdermal: Entering through the dermis, or skin, as in administration of a drug applied to the skin in ointment or patch form. [EU]

Tuberculosis: Any of the infectious diseases of man and other animals caused by species of mycobacterium. [NIH]

Urinalysis: Examination of urine by chemical, physical, or microscopic means. Routine urinalysis usually includes performing chemical screening tests, determining specific gravity, observing any unusual color or odor, screening for bacteriuria, and examining the sediment microscopically. [NIH]

Withdrawal: A variety of symptoms that occur after chronic use of some drugs is reduced or stopped. [NIH]

CHAPTER 2. SEEKING GUIDANCE

Overview

Some patients are comforted by the knowledge that a number of organizations dedicate their resources to helping people with MDMA dependence. These associations can become invaluable sources of information and advice. Many associations offer aftercare support, financial assistance, and other important services. Furthermore, healthcare research has shown that support groups often help people to better cope with their conditions.[15] In addition to support groups, your physician can be a valuable source of guidance and support. Therefore, finding a physician that can work with your unique situation is a very important aspect of your care.

In this chapter, we direct you to resources that can help you find patient organizations and medical specialists. We begin by describing how to find associations and peer groups that can help you better understand and cope with MDMA dependence. The chapter ends with a discussion on how to find a doctor that is right for you.

Associations and MDMA Dependence

As mentioned by the Agency for Healthcare Research and Quality, sometimes the emotional side of an illness can be as taxing as the physical side.[16] You may have fears or feel overwhelmed by your situation. Everyone has different ways of dealing with disease or physical injury. Your attitude, your expectations, and how well you cope with your condition can all

[15] Churches, synagogues, and other houses of worship might also have groups that can offer you the social support you need.
[16] This section has been adapted from **http://www.ahcpr.gov/consumer/diaginf5.htm**.

influence your well-being. This is true for both minor conditions and serious illnesses. For example, a study on female breast cancer survivors revealed that women who participated in support groups lived longer and experienced better quality of life when compared with women who did not participate. In the support group, women learned coping skills and had the opportunity to share their feelings with other women in the same situation.
There are a number of directories that list additional medical associations that you may find useful. While not all of these directories will provide different information, by consulting all of them, you will have nearly exhausted all sources for patient associations.

The National Health Information Center (NHIC)

The National Health Information Center (NHIC) offers a free referral service to help people find organizations that provide information about MDMA dependence. For more information, see the NHIC's Web site at **http://www.health.gov/NHIC/** or contact an information specialist by calling 1-800-336-4797.

DIRLINE

A comprehensive source of information on associations is the DIRLINE database maintained by the National Library of Medicine. The database comprises some 10,000 records of organizations, research centers, and government institutes and associations which primarily focus on health and biomedicine. DIRLINE is available via the Internet at the following Web site: **http://dirline.nlm.nih.gov/**. Simply type in "MDMA dependence" (or a synonym) or the name of a topic, and the site will list information contained in the database on all relevant organizations.

The Combined Health Information Database

Another comprehensive source of information on healthcare associations is the Combined Health Information Database. Using the "Detailed Search" option, you will need to limit your search to "Organizations" and "MDMA dependence". Type the following hyperlink into your Web browser: **http://chid.nih.gov/detail/detail.html**. To find associations, use the drop boxes at the bottom of the search page where "You may refine your search by." For publication date, select "All Years." Then, select your preferred language and the format option "Organization Resource Sheet." By making

these selections and typing in "MDMA dependence" (or synonyms) into the "For these words:" box, you will only receive results on organizations dealing with MDMA dependence. You should check back periodically with this database since it is updated every 3 months.

The National Organization for Rare Disorders, Inc.

The National Organization for Rare Disorders, Inc. has prepared a Web site that provides, at no charge, lists of associations organized by specific diseases. You can access this database at the following Web site: **http://www.rarediseases.org/cgi-bin/nord/searchpage**. Select the option called "Organizational Database (ODB)" and type "MDMA dependence" (or a synonym) in the search box.

Online Support Groups

In addition to support groups, commercial Internet service providers offer forums and chat rooms for people with different illnesses and conditions. WebMD®, for example, offers such a service at their Web site: **http://boards.webmd.com/roundtable**. These online self-help communities can help you connect with a network of people whose concerns are similar to yours. Online support groups are places where people can talk informally. If you read about a novel approach, consult with your doctor or other healthcare providers, as the treatments or discoveries you hear about may not be scientifically proven to be safe and effective.

Finding Drug Treatment and Alcohol Abuse Treatment Programs

To find the right drug abuse treatment program or alcohol abuse treatment program for you, two useful resources are available.

National Drug and Treatment Referral Routing Service[17]

The U.S. Department of Health and Human Services (HHS) Substance Abuse and Mental Health Services Administration's (SAMHSA) National Drug and Treatment Referral Routing Service provides a toll-free telephone number for alcohol and drug information/treatment referral assistance. The number is: **1-800-662-HELP**.

When you call the toll-free number, a recorded message gives you the following options:

1 - Printed materials on alcohol and drug information or 24-hour substance abuse treatment referral information in your area (Additional options guide you through information and referral choices, including a Spanish language message.)

2 - Location of a Substance Abuse Treatment Office in your State

Substance Abuse Treatment Facility Locator[18]

Sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA), this searchable directory of drug and alcohol treatment programs shows the location of facilities around the country that treat alcoholism, alcohol abuse and drug abuse problems (**http://findtreatment.samhsa.gov/**). The Locator includes more than 11,000 addiction treatment programs, including residential treatment centers, outpatient treatment programs, and hospital inpatient programs for drug addiction and alcoholism. Listings include treatment programs for marijuana, cocaine, and heroin addiction, as well as drug and alcohol treatment programs for adolescents, and adults.

SAMHSA endeavors to keep the Locator current. All information in the Locator is completely updated each year, based on facility responses to SAMHSA's National Survey of Substance Abuse Treatment Services. New facilities are added monthly. Updates to facility names, addresses, and telephone numbers are made monthly, if facilities inform SAMHSA of changes. The search site is: **http://findtreatment.samhsa.gov/facilitylocatordoc.htm.**

[17] Adapted from NIAAA: **http://www.niaaa.nih.gov/other/referral.htm**.
[18] Adapted from SAMHSA: **http://findtreatment.samhsa.gov/**.

Finding Doctors

One of the most important aspects of your treatment will be the relationship between you and your doctor or specialist. All patients with MDMA dependence must go through the process of selecting a physician. While this process will vary from person to person, the Agency for Healthcare Research and Quality makes a number of suggestions, including the following:[19]

- If you are in a managed care plan, check the plan's list of doctors first.
- Ask doctors or other health professionals who work with doctors, such as hospital nurses, for referrals.
- Call a hospital's doctor referral service, but keep in mind that these services usually refer you to doctors on staff at that particular hospital. The services do not have information on the quality of care that these doctors provide.
- Some local medical societies offer lists of member doctors. Again, these lists do not have information on the quality of care that these doctors provide.

Additional steps you can take to locate doctors include the following:

- Check with the associations listed earlier in this chapter.
- Information on doctors in some states is available on the Internet at **http://www.docboard.org**. This Web site is run by "Administrators in Medicine," a group of state medical board directors.
- The American Board of Medical Specialties can tell you if your doctor is board certified. "Certified" means that the doctor has completed a training program in a specialty and has passed an exam, or "board," to assess his or her knowledge, skills, and experience to provide quality patient care in that specialty. Primary care doctors may also be certified as specialists. The AMBS Web site is located at **http://www.abms.org/newsearch.asp**.[20] You can also contact the ABMS by phone at 1-866-ASK-ABMS.
- You can call the American Medical Association (AMA) at 800-665-2882 for information on training, specialties, and board certification for many licensed doctors in the United States. This information also can be found in "Physician Select" at the AMA's Web site: **http://www.ama-assn.org/aps/amahg.htm**.

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[19] This section is adapted from the AHRQ: **www.ahrq.gov/consumer/qntascii/qntdr.htm**.
[20] While board certification is a good measure of a doctor's knowledge, it is possible to receive quality care from doctors who are not board certified.

If the previous sources did not meet your needs, you may want to log on to the Web site of the National Organization for Rare Disorders (NORD) at **http://www.rarediseases.org/**. NORD maintains a database of doctors with expertise in various rare diseases. The Metabolic Information Network (MIN), 800-945-2188, also maintains a database of physicians with expertise in various metabolic diseases.

Selecting Your Doctor[21]

When you have compiled a list of prospective doctors, call each of their offices. First, ask if the doctor accepts your health insurance plan and if he or she is taking new patients. If the doctor is not covered by your plan, ask yourself if you are prepared to pay the extra costs. The next step is to schedule a visit with your chosen physician. During the first visit you will have the opportunity to evaluate your doctor and to find out if you feel comfortable with him or her. Ask yourself, did the doctor:

- Give me a chance to ask questions about MDMA dependence?
- Really listen to my questions?
- Answer in terms I understood?
- Show respect for me?
- Ask me questions?
- Make me feel comfortable?
- Address the health problem(s) I came with?
- Ask me my preferences about different kinds of treatments for MDMA dependence?
- Spend enough time with me?

Trust your instincts when deciding if the doctor is right for you. But remember, it might take time for the relationship to develop. It takes more than one visit for you and your doctor to get to know each other.

[21] This section has been adapted from the AHRQ: **www.ahrq.gov/consumer/qntascii/qntdr.htm**.

Working with Your Doctor[22]

Research has shown that patients who have good relationships with their doctors tend to be more satisfied with their care and have better results. Here are some tips to help you and your doctor become partners:

- You know important things about your symptoms and your health history. Tell your doctor what you think he or she needs to know.
- It is important to tell your doctor personal information, even if it makes you feel embarrassed or uncomfortable.
- Bring a "health history" list with you (and keep it up to date).
- Always bring any medications you are currently taking with you to the appointment, or you can bring a list of your medications including dosage and frequency information. Talk about any allergies or reactions you have had to your medications.
- Tell your doctor about any natural or alternative medicines you are taking.
- Bring other medical information, such as x-ray films, test results, and medical records.
- Ask questions. If you don't, your doctor will assume that you understood everything that was said.
- Write down your questions before your visit. List the most important ones first to make sure that they are addressed.
- Consider bringing a friend with you to the appointment to help you ask questions. This person can also help you understand and/or remember the answers.
- Ask your doctor to draw pictures if you think that this would help you understand.
- Take notes. Some doctors do not mind if you bring a tape recorder to help you remember things, but always ask first.
- Let your doctor know if you need more time. If there is not time that day, perhaps you can speak to a nurse or physician assistant on staff or schedule a telephone appointment.
- Take information home. Ask for written instructions. Your doctor may also have brochures and audio and videotapes that can help you.

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[22] This section has been adapted from the AHRQ: **www.ahrq.gov/consumer/qntascii/qntdr.htm**.

- After leaving the doctor's office, take responsibility for your care. If you have questions, call. If your symptoms get worse or if you have problems with your medication, call. If you had tests and do not hear from your doctor, call for your test results. If your doctor recommended that you have certain tests, schedule an appointment to get them done. If your doctor said you should see an additional specialist, make an appointment.

By following these steps, you will enhance the relationship you will have with your physician.

Broader Health-Related Resources

In addition to the references above, the NIH has set up guidance Web sites that can help patients find healthcare professionals. These include:[23]

- Caregivers:
  http://www.nlm.nih.gov/medlineplus/caregivers.html
- Choosing a Doctor or Healthcare Service:
  http://www.nlm.nih.gov/medlineplus/choosingadoctororhealthcareservice.html
- Hospitals and Health Facilities:
  http://www.nlm.nih.gov/medlineplus/healthfacilities.html

[23] You can access this information at:
http://www.nlm.nih.gov/medlineplus/healthsystem.html.

PART II: ADDITIONAL RESOURCES AND ADVANCED MATERIAL

ABOUT PART II

In Part II, we introduce you to additional resources and advanced research on MDMA dependence. All too often, patients who conduct their own research are overwhelmed by the difficulty in finding and organizing information. The purpose of the following chapters is to provide you an organized and structured format to help you find additional information resources on MDMA dependence. In Part II, as in Part I, our objective is not to interpret the latest advances on MDMA dependence or render an opinion. Rather, our goal is to give you access to original research and to increase your awareness of sources you may not have already considered. In this way, you will come across the advanced materials often referred to in pamphlets, books, or other general works. Once again, some of this material is technical in nature, so consultation with a professional familiar with MDMA dependence is suggested.

CHAPTER 3. STUDIES ON MDMA DEPENDENCE

Overview

Every year, academic studies are published on MDMA dependence or related conditions. Broadly speaking, there are two types of studies. The first are peer reviewed. Generally, the content of these studies has been reviewed by scientists or physicians. Peer-reviewed studies are typically published in scientific journals and are usually available at medical libraries. The second type of studies is non-peer reviewed. These works include summary articles that do not use or report scientific results. These often appear in the popular press, newsletters, or similar periodicals.

In this chapter, we will show you how to locate peer-reviewed references and studies on MDMA dependence. We will begin by discussing research that has been summarized and is free to view by the public via the Internet. We then show you how to generate a bibliography on MDMA dependence and teach you how to keep current on new studies as they are published or undertaken by the scientific community.

Federally-Funded Research on MDMA Dependence

The U.S. Government supports a variety of research studies relating to MDMA dependence and associated conditions. These studies are tracked by the Office of Extramural Research at the National Institutes of Health.[24]

[24] Healthcare projects are funded by the National Institutes of Health (NIH), Substance Abuse and Mental Health Services (SAMHSA), Health Resources and Services Administration (HRSA), Food and Drug Administration (FDA), Centers for Disease Control

CRISP (Computerized Retrieval of Information on Scientific Projects) is a searchable database of federally-funded biomedical research projects conducted at universities, hospitals, and other institutions. Visit the CRISP Web site at **http://commons.cit.nih.gov/crisp3/CRISP.Generate_Ticket**. You can perform targeted searches by various criteria including geography, date, as well as topics related to MDMA dependence and related conditions.

For most of the studies, the agencies reporting into CRISP provide summaries or abstracts. As opposed to clinical trial research using patients, many federally-funded studies use animals or simulated models to explore MDMA dependence and related conditions. In some cases, therefore, it may be difficult to understand how some basic or fundamental research could eventually translate into medical practice. The following sample is typical of the type of information found when searching the CRISP database for MDMA dependence:

- **Project Title: Neuropsychopharmacology MDMA--Monoaminergic Mechanisms**

  Principal Investigator & Institution: Cunningham, Kathryn A.; Professor; Pharmacology and Toxicology; University of Texas Medical Br Galveston 301 University Blvd Galveston, Tx 77555

  Timing: Fiscal Year 2001; Project Start 1-FEB-2001; Project End 1-JAN-2006

  Summary: (Adapted from the Investigator's Abstract) This application is in response to a program announcement from NIDA to investigate "Club Drugs." The substituted amphetamine 3,4-methylenedioxymethamphetamine (MDMA; "ecstasy") is chemically similar to methamphetamine and is one of the "club drugs" currently popular in youth culture. As recently as December 1999, the National Institute on Drug Abuse issued a Community Drug Alert Bulletin warning of the alarming increase and danger of "club drugs," in particular MDMA. The intoxication elicited by MDMA combines the classical stimulant properties of amphetamine with mild psychedelic effects. Serotonin (5-hydroxytryptamine; 5HT) neurotransmission appears to make a unique contribution to the unusual behavioral profile of MDMA. Important roles for 5HT-1B, -2A and -2C receptors are supported by preliminary data and published studies with non-selective 5-HT antagonists. In addition, the dense 5-HT innervation and regional localization of 5-HT-1B, 2A and 2C receptors in mesocorticoaccumbens and nigrostriatal dopamine (DA) circuits which mediate the behavioral

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and Prevention (CDCP), Agency for Healthcare Research and Quality (AHRQ), and Office of Assistant Secretary of Health (OASH).

effects of psychostimulants suggest these circuits as sites of action for the neuropsychopharmacological effects of MDMA. The present series of experiments are planned to systematically test hypotheses concerning the role of specific 5-HT receptor subtypes in mediating the hypermotive and discriminative stimulus effects of MDMA. To this end, the role of 5-HT-1B, -2A and -2C in the acute locomotor stimulant effects of (+)-MDMA will be investigated using novel, selective receptor antagonists. The site of action for brain 5-HT-1B, -2A and 2C within mesocorticoaccumbens and/or nigrostriatal circuits to control spontaneous and (+)-MDMA-evoked behaviors will be explored using highly localized microinfusions of the selective 5-HT antagonists and antisense oligonucleotides directed against specific 5-HT receptors. The ability of 5-HT-1B, -2A and -2C antagonists to block or enhance the development and/or expression of sensitization to (+)-MDMA will be analyzed. Modifications in abundance of 5-HT-1B, -2A, and -2C receptors will also be established via levels of receptor mRNA and protein expression as well as behaviors induced by selective 5-HT receptor agonists at 3, 7, 14 and 28 days of withdrawal from chronic (+)-MDMA. The generality of observations to a model of the human subjective effects of (+)-MDMA will be assessed in drug discrimination assays in rats. Thus, the role of 5-HT-1B, -2A, and -2C receptors in the discriminative stimulus effects of (+)-MDMA will be investigated using novel, selective receptor antagonists administered both systemically and intracranially. The experiments outlined will further elucidate the unique roles that each receptor plays in modulating the in vivo effects of MDMA and how these receptors may control the MDMA-stimulated output of the mesocorticoaccumbens and nigrostriatal circuitry. These data will lend understanding not only to the actions of the abused drug MDMA and approaches to pharmacotherapy for MDMA dependence, but also to the potential involvement of 5-HT receptors in disorders characterized by DA dysfunction and/or the imbalance between 5-HT and DA systems, such as schizophrenia, depression and anxiety.

Website: http://commons.cit.nih.gov/crisp3/CRISP.Generate_Ticket

The National Library of Medicine: PubMed

One of the quickest and most comprehensive ways to find academic studies in both English and other languages is to use PubMed, maintained by the National Library of Medicine. The advantage of PubMed over previously mentioned sources is that it covers a greater number of domestic and foreign

references. It is also free to the public.[25] If the publisher has a Web site that offers full text of its journals, PubMed will provide links to that site, as well as to sites offering other related data. User registration, a subscription fee, or some other type of fee may be required to access the full text of articles in some journals.

To generate your own bibliography of studies dealing with MDMA dependence, simply go to the PubMed Web site at **www.ncbi.nlm.nih.gov/pubmed**. Type "MDMA dependence" (or synonyms) into the search box, and click "Go." The following is the type of output you can expect from PubMed for "MDMA dependence" (hyperlinks lead to article summaries):

- **Electrophysiological evidence of serotonergic impairment in long-term MDMA ("ecstasy") users.**
  Author(s): Croft RJ, Klugman A, Baldeweg T, Gruzelier JH.
  Source: The American Journal of Psychiatry. 2001 October; 158(10): 1687-92.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11579003&dopt=Abstract

Vocabulary Builder

Assay: Determination of the amount of a particular constituent of a mixture, or of the biological or pharmacological potency of a drug. [EU]

Innervation: 1. the distribution or supply of nerves to a part. 2. the supply of nervous energy or of nerve stimulus sent to a part. [EU]

Intoxication: Poisoning, the state of being poisoned. [EU]

Localization: 1. the determination of the site or place of any process or lesion. 2. restriction to a circumscribed or limited area. 3. prelocalization. [EU]

Locomotor: Of or pertaining to locomotion; pertaining to or affecting the locomotive apparatus of the body. [EU]

Psychiatry: The medical science that deals with the origin, diagnosis,

[25] PubMed was developed by the National Center for Biotechnology Information (NCBI) at the National Library of Medicine (NLM) at the National Institutes of Health (NIH). The PubMed database was developed in conjunction with publishers of biomedical literature as a search tool for accessing literature citations and linking to full-text journal articles at Web sites of participating publishers. Publishers that participate in PubMed supply NLM with their citations electronically prior to or at the time of publication.

prevention, and treatment of mental disorders. [NIH]

Receptor: 1. a molecular structure within a cell or on the surface characterized by (1) selective binding of a specific substance and (2) a specific physiologic effect that accompanies the binding, e.g., cell-surface receptors for peptide hormones, neurotransmitters, antigens, complement fragments, and immunoglobulins and cytoplasmic receptors for steroid hormones. 2. a sensory nerve terminal that responds to stimuli of various kinds. [EU]

Schizophrenia: A severe emotional disorder of psychotic depth characteristically marked by a retreat from reality with delusion formation, hallucinations, emotional disharmony, and regressive behavior. [NIH]

Sensitization: 1. administration of antigen to induce a primary immune response; priming; immunization. 2. exposure to allergen that results in the development of hypersensitivity. 3. the coating of erythrocytes with antibody so that they are subject to lysis by complement in the presence of homologous antigen, the first stage of a complement fixation test. [EU]

Toxicology: The science concerned with the detection, chemical composition, and pharmacologic action of toxic substances or poisons and the treatment and prevention of toxic manifestations. [NIH]

CHAPTER 4. BOOKS ON MDMA DEPENDENCE

Overview

This chapter provides bibliographic book references relating to MDMA dependence. You have many options to locate books on MDMA dependence. The simplest method is to go to your local bookseller and inquire about titles that they have in stock or can special order for you. Some patients, however, feel uncomfortable approaching their local booksellers and prefer online sources (e.g. **www.amazon.com** and **www.bn.com**). In addition to online booksellers, excellent sources for book titles on MDMA dependence include the Combined Health Information Database and the National Library of Medicine. Once you have found a title that interests you, visit your local public or medical library to see if it is available for loan.

Book Summaries: Online Booksellers

Commercial Internet-based booksellers, such as Amazon.com and Barnes & Noble.com, offer summaries which have been supplied by each title's publisher. Some summaries also include customer reviews. Your local bookseller may have access to in-house and commercial databases that index all published books (e.g. Books in Print®). The following have been recently listed with online booksellers as relating to MDMA dependence (sorted alphabetically by title; follow the hyperlink to view more details at Amazon.com):

- **Education and Ecstasy** (1969); ISBN: 0440022452; http://www.amazon.com/exec/obidos/ASIN/0440022452/icongroupinterna

The National Library of Medicine Book Index

The National Library of Medicine at the National Institutes of Health has a massive database of books published on healthcare and biomedicine. Go to the following Internet site, **http://locatorplus.gov/**, and then select "Search LOCATORplus." Once you are in the search area, simply type "MDMA dependence" (or synonyms) into the search box, and select "books only." From there, results can be sorted by publication date, author, or relevance. The following was recently catalogued by the National Library of Medicine:[26]

- **Amphetamine-type stimulants: a report from the WHO Meeting on Amphetamines, MDMA, and Other Psychostimulants, Geneva, 12-15 November 1996.** Author: WHO Meeting on Amphetamines, MDMA, and Other Psychostimulants (1996: Geneva, Switzerland); Year: 1997; Geneva: Programme on Substance Abuse, Division of Mental Health and Prevention of Substance Abuse, World Health Organization, 1997
- **Creating the American junkie: addiction research in the classic era of narcotic control.** Author: Caroline Jean Acker; Year: 2002; Baltimore: Johns Hopkins University Press, 2002; ISBN: 0801867983 (hardcover: alk. paper)
  http://www.amazon.com/exec/obidos/ASIN/0801867983/icongroupinterna
- **Ecstasy: MDMA and other ring-substituted amphetamines.** Author: Linda R. Gowing ... [et al.]; Year: 2001; [Geneva?]: World Health Organization, Mental Health and Substance Dependence Dept. c2001
- **Ecstasy: the clinical, pharmacological, and neurotoxicological effects of the drug MDMA.** Author: edited by Stephen J. Peroutka; Year: 1990; Boston: Kluwer Academic Publishers, c1990; ISBN: 0792303059
  http://www.amazon.com/exec/obidos/ASIN/0792303059/icongroupinterna
- **Ecstasy: the complete guide: a comprehensive look at the risks and benefits of MDMA.** Author: edited by Julie Holland; Year: 2001; Rochester, Vt.: Park Street Press, c2001; ISBN: 0892818573 (pbk.)

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[26] In addition to LOCATORPlus, in collaboration with authors and publishers, the National Center for Biotechnology Information (NCBI) is adapting biomedical books for the Web. The books may be accessed in two ways: (1) by searching directly using any search term or phrase (in the same way as the bibliographic database PubMed), or (2) by following the links to PubMed abstracts. Each PubMed abstract has a "Books" button that displays a facsimile of the abstract in which some phrases are hypertext links. These phrases are also found in the books available at NCBI. Click on hyperlinked results in the list of books in which the phrase is found. Currently, the majority of the links are between the books and PubMed. In the future, more links will be created between the books and other types of information, such as gene and protein sequences and macromolecular structures. See **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Books.**

http://www.amazon.com/exec/obidos/ASIN/0892818573/icongroupinterna

- **Ecstasy: the MDMA story.** Author: Bruce Eisner; foreword by Stanley Krippner; introduction by Peter Stafford; chemical synthesis by Alexander Shulgin; Year: 1994; Berkeley, CA: Ronin Pub., c1994; ISBN: 0914171682
  http://www.amazon.com/exec/obidos/ASIN/0914171682/icongroupinterna
- **How many dependent opioid users are there in Australia?** Author: Wayne Hall ... [et al.]; Year: 2000; [Kensington, N.S.W.]: National Drug and Alcohol Research Centre, c2000; ISBN: 0733407110
- **Pursuit of ecstasy: the MDMA experience.** Author: Jerome Beck and Marsha Rosenbaum; Year: 1994; Albany: State University of New York Press, c1994; ISBN: 0791418170 (hc: alk. paper)
  http://www.amazon.com/exec/obidos/ASIN/0791418170/icongroupinterna

Chapters on MDMA Dependence

Frequently, MDMA dependence will be discussed within a book, perhaps within a specific chapter. In order to find chapters that are specifically dealing with MDMA dependence, an excellent source of abstracts is the Combined Health Information Database. You will need to limit your search to book chapters and MDMA dependence using the "Detailed Search" option. Go to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. To find book chapters, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Book Chapter." By making these selections and typing in "MDMA dependence" (or synonyms) into the "For these words:" box, you will only receive results on chapters in books.

General Home References

In addition to references for MDMA dependence, you may want a general home medical guide that spans all aspects of home healthcare. The following list is a recent sample of such guides (sorted alphabetically by title; hyperlinks provide rankings, information, and reviews at Amazon.com):

- **Drugs (Health Issues)** by Sarah Lennard-Brown; Library Binding - 64 pages (March 2002), Raintree/Steck Vaughn; ISBN: 0739847732; **http://www.amazon.com/exec/obidos/ASIN/0739847732/icongroupinterna**

- **The Encyclopedia of Drugs and Alcohol (Reference)** by Greg Roza; School & Library Binding - 199 pages (September 2001); Franklin Watts, Incorporated; ISBN: 0531118991; **http://www.amazon.com/exec/obidos/ASIN/0531118991/icongroupinterna**

Vocabulary Builder

Mysticism: A philosophy based upon spiritual intuition that is believed to transcend ordinary sensory experiences or understanding. [NIH]

Overdose: 1. to administer an excessive dose. 2. an excessive dose. [EU]

Prevalence: The total number of cases of a given disease in a specified population at a designated time. It is differentiated from incidence, which refers to the number of new cases in the population at a given time. [NIH]

Psychology: The science dealing with the study of mental processes and behavior in man and animals. [NIH]

Psychopathology: The study of significant causes and processes in the development of mental illness. [NIH]

CHAPTER 5. MULTIMEDIA ON MDMA DEPENDENCE

Overview

Information on MDMA dependence can come in a variety of formats. Among multimedia sources, video productions, slides, audiotapes, and computer databases are often available. In this chapter, we show you how to keep current on multimedia sources of information on MDMA dependence. We start with sources that have been summarized by federal agencies, and then show you how to find bibliographic information catalogued by the National Library of Medicine. If you see an interesting item, visit your local medical library to check on the availability of the title.

Bibliography: Multimedia on MDMA Dependence

The National Library of Medicine is a rich source of information on healthcare-related multimedia productions including slides, computer software, and databases. To access the multimedia database, go to the following Web site: **http://locatorplus.gov/**. Select "Search LOCATORplus." Once in the search area, simply type in MDMA dependence (or synonyms). Then, in the option box provided below the search box, select "Audiovisuals and Computer Files." From there, you can choose to sort results by publication date, author, or relevance. The following multimedia has been indexed on MDMA dependence. For more information, follow the hyperlink indicated:

- **Chemical dependence : releasing the hostage within.** Source: Nimco; produced by St. Mary's Medical Center; Year: 1995; Format: Videorecording; Calhoun, KY: Nimco, c1995

- **Disorders due to psychoactive substance abuse use.** Source: [presented by] Films for the Humanities & Sciences; Year: 1998; Format: Videorecording; Princeton, N.J.: Films for the Humanities & Sciences, c1998
- **Drug epidemic.** Source: Psychodynamic Research Corporation, in association with Medi-Tel Communications; Year: 1975; Format: Videorecording; Spring Valley, N. Y.: Blue Hill Educational Systems, c1975
- **Ecstasy : when the party's over.** Year: 2001; Format: Videorecording; Huntsville, Tex.: Educational Video Network, c2001
- **Insomnia and addiction : meeting the standard of care.** Source: Marshfield Clinic, Saint Joseph's Hospital; a presentation of the Marshfield Video Network; Year: 1995; Format: Videorecording; Marshfield, WI: Video Network, [1995]
- **Issues in treatment of anxiety : drug use, dependence, abuse and addiction.** Source: [presented by] Marshfield Clinic, Saint Joseph's Hospital, [and] Marshfield Medical Research Foundation; Year: 1992; Format: Videorecording; Marshfield, WI: Marshfield Regional Video Network, [1992]
- **Methadone : curse or cure?** Source: [presented by] Filmakers Library, Inc; Year: 1994; Format: Videorecording; New York, N.Y.: Filmakers Library, [1994]
- **Methadone : where we are.** Source: produced by Issembert Productions [and] NIDA; Year: 1993; Format: Videorecording; [Rockville, Md.]: National Institute on Drug Abuse, [1993]
- **Please let us help.** Source: [presented by] Veterans Administration Drug Dependence Treatment Program; produced cooperatively by the VA Regional Office in Atlanta and VA Medical Center in Decatur and the National Audiovisual Center; Year: 1980; Format: Videorecording; [Washington: Veterans Administration], 1980
- **Street drugs.** Source: a Pyramid Film & Video presentation; Year: 1989; Format: Videorecording; Santa Monica, CA: Pyramid Films Corp., c1989
- **Substance abuse : alcoholism and drug dependence.** Source: Veterans Administration; Communications by Design; VAH Brentwood, Los Angeles; Year: 1980; Format: Videorecording; Washington, D.C.: National Audiovisual Center, [1980]
- **Substance dependence.** Source: Medcom, Inc; Year: 1985; Format: Filmstrip; Garden Grove, Calif.: Medcom, c1985
- **Uppers, downers, all arounders : drugs & effects.** Source: presented by CNS Productions Inc. in cooperation with the Haight-Ashbury Drug

Detox Clinic; Year: 2001; Format: Videorecording; Ashland, OR : CNS Productions, c2001

Vocabulary Builder

Opium: The air-dried exudate from the unripe seed capsule of the opium poppy, Papaver somniferum, or its variant, P. album. It contains a number of alkaloids, but only a few - morphine, codeine, and papaverine - have clinical significance. Opium has been used as an analgesic, antitussive, antidiarrheal, and antispasmodic. [NIH]

CHAPTER 6. PHYSICIAN GUIDELINES AND DATABASES

Overview

Doctors and medical researchers rely on a number of information sources to help patients with their conditions. Many will subscribe to journals or newsletters published by their professional associations or refer to specialized textbooks or clinical guides published for the medical profession. In this chapter, we focus on databases and Internet-based guidelines created or written for this professional audience.

NIH Guidelines

For the more common diseases, The National Institutes of Health publish guidelines that are frequently consulted by physicians. Publications are typically written by one or more of the various NIH Institutes. For physician guidelines, commonly referred to as "clinical" or "professional" guidelines, you can visit the following Institutes:

- Office of the Director (OD); guidelines consolidated across agencies available at **http://www.nih.gov/health/consumer/conkey.htm**
- National Institute of General Medical Sciences (NIGMS); fact sheets available at **http://www.nigms.nih.gov/news/facts/**
- National Library of Medicine (NLM); extensive encyclopedia (A.D.A.M., Inc.) with guidelines: **http://www.nlm.nih.gov/medlineplus/healthtopics.html**
- National Institute on Drug Abuse (NIDA); guidelines available at **http://www.nida.nih.gov/DrugAbuse.html**

NIH Databases

In addition to the various Institutes of Health that publish professional guidelines, the NIH has designed a number of databases for professionals.[27] Physician-oriented resources provide a wide variety of information related to the biomedical and health sciences, both past and present. The format of these resources varies. Searchable databases, bibliographic citations, full text articles (when available), archival collections, and images are all available. The following are referenced by the National Library of Medicine:[28]

- **Bioethics:** Access to published literature on the ethical, legal and public policy issues surrounding healthcare and biomedical research. This information is provided in conjunction with the Kennedy Institute of Ethics located at Georgetown University, Washington, D.C.: **http://www.nlm.nih.gov/databases/databases_bioethics.html**
- **HIV/AIDS Resources:** Describes various links and databases dedicated to HIV/AIDS research: **http://www.nlm.nih.gov/pubs/factsheets/aidsinfs.html**
- **NLM Online Exhibitions:** Describes "Exhibitions in the History of Medicine": **http://www.nlm.nih.gov/exhibition/exhibition.html**. Additional resources for historical scholarship in medicine: **http://www.nlm.nih.gov/hmd/hmd.html**
- **Biotechnology Information:** Access to public databases. The National Center for Biotechnology Information conducts research in computational biology, develops software tools for analyzing genome data, and disseminates biomedical information for the better understanding of molecular processes affecting human health and disease: **http://www.ncbi.nlm.nih.gov/**
- **Population Information:** The National Library of Medicine provides access to worldwide coverage of population, family planning, and related health issues, including family planning technology and programs, fertility, and population law and policy: **http://www.nlm.nih.gov/databases/databases_population.html**
- **Cancer Information:** Access to caner-oriented databases: **http://www.nlm.nih.gov/databases/databases_cancer.html**

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[27] Remember, for the general public, the National Library of Medicine recommends the databases referenced in MEDLINE*plus* (**http://medlineplus.gov/** or **http://www.nlm.nih.gov/medlineplus/databases.html**).

[28] See **http://www.nlm.nih.gov/databases/databases.html**.

- **Profiles in Science:** Offering the archival collections of prominent twentieth-century biomedical scientists to the public through modern digital technology: **http://www.profiles.nlm.nih.gov/**
- **Chemical Information:** Provides links to various chemical databases and references: **http://sis.nlm.nih.gov/Chem/ChemMain.html**
- **Clinical Alerts:** Reports the release of findings from the NIH-funded clinical trials where such release could significantly affect morbidity and mortality: **http://www.nlm.nih.gov/databases/alerts/clinical_alerts.html**
- **Space Life Sciences:** Provides links and information to space-based research (including NASA): **http://www.nlm.nih.gov/databases/databases_space.html**
- **MEDLINE:** Bibliographic database covering the fields of medicine, nursing, dentistry, veterinary medicine, the healthcare system, and the pre-clinical sciences: **http://www.nlm.nih.gov/databases/databases_medline.html**
- **Toxicology and Environmental Health Information (TOXNET):** Databases covering toxicology and environmental health: **http://sis.nlm.nih.gov/Tox/ToxMain.html**
- **Visible Human Interface:** Anatomically detailed, three-dimensional representations of normal male and female human bodies: **http://www.nlm.nih.gov/research/visible/visible_human.html**

While all of the above references may be of interest to physicians who study and treat MDMA dependence, the following are particularly noteworthy.

The Combined Health Information Database

A comprehensive source of information on clinical guidelines written for professionals is the Combined Health Information Database. You will need to limit your search to "Brochure/Pamphlet," "Fact Sheet," or "Information Package" and MDMA dependence using the "Detailed Search" option. Go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. To find associations, use the drop boxes at the bottom of the search page where "You may refine your search by." For the publication date, select "All Years," select your preferred language, and the format option "Fact Sheet." By making these selections and typing "MDMA dependence" (or synonyms) into the "For these words:" box above, you will only receive results on fact sheets dealing with MDMA dependence. The following is a sample result:

The NLM Gateway[29]

The NLM (National Library of Medicine) Gateway is a Web-based system that lets users search simultaneously in multiple retrieval systems at the U.S. National Library of Medicine (NLM). It allows users of NLM services to initiate searches from one Web interface, providing "one-stop searching" for many of NLM's information resources or databases.[30] One target audience for the Gateway is the Internet user who is new to NLM's online resources and does not know what information is available or how best to search for it. This audience may include physicians and other healthcare providers, researchers, librarians, students, and, increasingly, patients, their families, and the public.[31] To use the NLM Gateway, simply go to the search site at **http://gateway.nlm.nih.gov/gw/Cmd**. Type "MDMA dependence" (or synonyms) into the search box and click "Search." The results will be presented in a tabular form, indicating the number of references in each database category.

Results Summary

Category	Items Found
Journal Articles	345044
Books / Periodicals / Audio Visual	2565
Consumer Health	293
Meeting Abstracts	3093
Other Collections	100
Total	351095

[29] Adapted from NLM: **http://gateway.nlm.nih.gov/gw/Cmd?Overview.x**.

[30] The NLM Gateway is currently being developed by the Lister Hill National Center for Biomedical Communications (LHNCBC) at the National Library of Medicine (NLM) of the National Institutes of Health (NIH).

[31] Other users may find the Gateway useful for an overall search of NLM's information resources. Some searchers may locate what they need immediately, while others will utilize the Gateway as an adjunct tool to other NLM search services such as PubMed® and MEDLINEplus®. The Gateway connects users with multiple NLM retrieval systems while also providing a search interface for its own collections. These collections include various types of information that do not logically belong in PubMed, LOCATORplus, or other established NLM retrieval systems (e.g., meeting announcements and pre-1966 journal citations). The Gateway will provide access to the information found in an increasing number of NLM retrieval systems in several phases.

HSTAT[32]

HSTAT is a free, Web-based resource that provides access to full-text documents used in healthcare decision-making.[33] HSTAT's audience includes healthcare providers, health service researchers, policy makers, insurance companies, consumers, and the information professionals who serve these groups. HSTAT provides access to a wide variety of publications, including clinical practice guidelines, quick-reference guides for clinicians, consumer health brochures, evidence reports and technology assessments from the Agency for Healthcare Research and Quality (AHRQ), as well as AHRQ's Put Prevention Into Practice.[34] Simply search by "MDMA dependence" (or synonyms) at the following Web site: **http://text.nlm.nih.gov**.

Coffee Break: Tutorials for Biologists[35]

Some patients may wish to have access to a general healthcare site that takes a scientific view of the news and covers recent breakthroughs in biology that may one day assist physicians in developing treatments. To this end, we recommend "Coffee Break," a collection of short reports on recent biological discoveries. Each report incorporates interactive tutorials that demonstrate how bioinformatics tools are used as a part of the research process. Currently, all Coffee Breaks are written by NCBI staff.[36] Each report is about 400 words and is usually based on a discovery reported in one or more articles from recently published, peer-reviewed literature.[37] This site has new

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[32] Adapted from HSTAT: **http://www.nlm.nih.gov/pubs/factsheets/hstat.html**.

[33] The HSTAT URL is **http://hstat.nlm.nih.gov/**.

[34] Other important documents in HSTAT include: the National Institutes of Health (NIH) Consensus Conference Reports and Technology Assessment Reports; the HIV/AIDS Treatment Information Service (ATIS) resource documents; the Substance Abuse and Mental Health Services Administration's Center for Substance Abuse Treatment (SAMHSA/CSAT) Treatment Improvement Protocols (TIP) and Center for Substance Abuse Prevention (SAMHSA/CSAP) Prevention Enhancement Protocols System (PEPS); the Public Health Service (PHS) Preventive Services Task Force's *Guide to Clinical Preventive Services*; the independent, nonfederal Task Force on Community Services *Guide to Community Preventive Services*; and the Health Technology Advisory Committee (HTAC) of the Minnesota Health Care Commission (MHCC) health technology evaluations.

[35] Adapted from **http://www.ncbi.nlm.nih.gov/Coffeebreak/Archive/FAQ.html**.

[36] The figure that accompanies each article is frequently supplied by an expert external to NCBI, in which case the source of the figure is cited. The result is an interactive tutorial that tells a biological story.

[37] After a brief introduction that sets the work described into a broader context, the report focuses on how a molecular understanding can provide explanations of observed biology and lead to therapies for diseases. Each vignette is accompanied by a figure and hypertext links that lead to a series of pages that interactively show how NCBI tools and resources are used in the research process.

articles every few weeks, so it can be considered an online magazine of sorts, and intended for general background information. You can access the Coffee Break Web site at **http://www.ncbi.nlm.nih.gov/Coffeebreak/**.

Other Commercial Databases

In addition to resources maintained by official agencies, other databases exist that are commercial ventures addressing medical professionals. Here are a few examples that may interest you:

- **CliniWeb International:** Index and table of contents to selected clinical information on the Internet; see **http://www.ohsu.edu/cliniweb/**.
- **Image Engine:** Multimedia electronic medical record system that integrates a wide range of digitized clinical images with textual data stored in the University of Pittsburgh Medical Center's MARS electronic medical record system; see the following Web site: **http://www.cml.upmc.edu/cml/imageengine/imageEngine.html**.
- **Medical World Search:** Searches full text from thousands of selected medical sites on the Internet; see **http://www.mwsearch.com/**.
- **MedWeaver:** Prototype system that allows users to search differential diagnoses for any list of signs and symptoms, to search medical literature, and to explore relevant Web sites; see **http://www.med.virginia.edu/~wmd4n/medweaver.html**.
- **Metaphrase:** Middleware component intended for use by both caregivers and medical records personnel. It converts the informal language generally used by caregivers into terms from formal, controlled vocabularies; see the following Web site: **http://www.lexical.com/Metaphrase.html**.

Specialized References

The following books are specialized references written for professionals interested in MDMA dependence (sorted alphabetically by title, hyperlinks provide rankings, information, and reviews at Amazon.com):

- **American Psychiatric Press Textbook of Substance Abuse Treatment** by Marc Galanter (Editor), Herbert D. Kleber (Editor); Hardcover - 595 pages, 2nd edition (May 15, 1999), American Psychiatric Press; ISBN: 0880488204; **http://www.amazon.com/exec/obidos/ASIN/0880488204/icongroupinterna**

- **Combining Medication and Psychosocial Treatments for Addictions: The BRENDA Approach** by Joseph Volpicelli (Editor), et al; Hardcover - 208 pages, 1st edition (February 15, 2001), Guilford Press; ISBN: 1572306181; **http://www.amazon.com/exec/obidos/ASIN/1572306181/icongroupinterna**
- **Drink, Drugs and Dependence: From Science to Clinical Practice** by Woody Caan (Editor); Paperback - 272 pages (June 1, 2002), Routledge; ISBN: 0415279011; **http://www.amazon.com/exec/obidos/ASIN/0415279011/icongroupinterna**
- **Neurobiology of Addictions: Implications for Clinical Practice** by Richard T. Spence (Editor), et al; Hardcover (February 2002); ISBN: 0789016664; **http://www.amazon.com/exec/obidos/ASIN/0789016664/icongroupinterna**
- **Solutions for the 'Treatment-Resistant' Addicted Client : Therapeutic Techniques for Engaging Challenging Clients** by Nicholas A. Roes; Textbook Binding (January 2002), Haworth Press; ISBN: 0789011204; **http://www.amazon.com/exec/obidos/ASIN/0789011204/icongroupinterna**
- **Substance Abuse: A Guide for Health Professionals** by American Academy of Pediatrics, et al; Paperback - 379 pages, 2nd edition (November 15, 2001), American Nurses Association; ISBN: 1581100728; **http://www.amazon.com/exec/obidos/ASIN/1581100728/icongroupinterna**

Vocabulary Builder

Molecular: Of, pertaining to, or composed of molecules : a very small mass of matter. [EU]

Pediatrics: A medical specialty concerned with maintaining health and providing medical care to children from birth to adolescence. [NIH]

PART III. APPENDICES

ABOUT PART III

Part III is a collection of appendices on general medical topics which may be of interest patients with MDMA dependence and related conditions.

APPENDIX A. RESEARCHING YOUR MEDICATIONS

Overview

There are a number of sources available on new or existing medications which could be prescribed to patients with MDMA dependence. While a number of hard copy or CD-Rom resources are available to patients and physicians for research purposes, a more flexible method is to use Internet-based databases. In this chapter, we will begin with a general overview of medications. We will then proceed to outline official recommendations on how you should view your medications. You may also want to research medications that you are currently taking for other conditions as they may interact with medications for MDMA dependence. Research can give you information on the side effects, interactions, and limitations of prescription drugs used in the treatment of MDMA dependence. Broadly speaking, there are two sources of information on approved medications: public sources and private sources. We will emphasize free-to-use public sources.

Your Medications: The Basics[38]

The Agency for Health Care Research and Quality has published extremely useful guidelines on how you can best participate in the medication aspects of MDMA dependence. Taking medicines is not always as simple as swallowing a pill. It can involve many steps and decisions each day. The AHCRQ recommends that patients with MDMA dependence take part in treatment decisions. Do not be afraid to ask questions and talk about your concerns. By taking a moment to ask questions early, you may avoid problems later. Here are some points to cover each time a new medicine is prescribed**:**

- Ask about all parts of your treatment, including diet changes, exercise, and medicines.
- Ask about the risks and benefits of each medicine or other treatment you might receive.
- Ask how often you or your doctor will check for side effects from a given medication.

Do not hesitate to ask what is important to you about your medicines. You may want a medicine with the fewest side effects, or the fewest doses to take each day. You may care most about cost, or how the medicine might affect how you live or work. Or, you may want the medicine your doctor believes will work the best. Telling your doctor will help him or her select the best treatment for you.

Do not be afraid to "bother" your doctor with your concerns and questions about medications for MDMA dependence. You can also talk to a nurse or a pharmacist. They can help you better understand your treatment plan. Feel free to bring a friend or family member with you when you visit your doctor. Talking over your options with someone you trust can help you make better choices, especially if you are not feeling well. Specifically, ask your doctor the following:

- The name of the medicine and what it is supposed to do.
- How and when to take the medicine, how much to take, and for how long.
- What food, drinks, other medicines, or activities you should avoid while taking the medicine.
- What side effects the medicine may have, and what to do if they occur.

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[38] This section is adapted from AHCRQ: **http://www.ahcpr.gov/consumer/ncpiebro.htm**.

- If you can get a refill, and how often.
- About any terms or directions you do not understand.
- What to do if you miss a dose.
- If there is written information you can take home (most pharmacies have information sheets on your prescription medicines; some even offer large-print or Spanish versions).

Do not forget to tell your doctor about all the medicines you are currently taking (not just those for MDMA dependence). This includes prescription medicines and the medicines that you buy over the counter. Then your doctor can avoid giving you a new medicine that may not work well with the medications you take now. When talking to your doctor, you may wish to prepare a list of medicines you currently take, the reason you take them, and how you take them. Be sure to include the following information for each:

- Name of medicine
- Reason taken
- Dosage
- Time(s) of day

Also include any over-the-counter medicines, such as:

- Laxatives
- Diet pills
- Vitamins
- Cold medicine
- Aspirin or other pain, headache, or fever medicine
- Cough medicine
- Allergy relief medicine
- Antacids
- Sleeping pills
- Others (include names)

Learning More about Your Medications

Because of historical investments by various organizations and the emergence of the Internet, it has become rather simple to learn about the medications your doctor has recommended for MDMA dependence. One such source is the United States Pharmacopeia. In 1820, eleven physicians met in Washington, D.C. to establish the first compendium of standard drugs for the United States. They called this compendium the "U.S. Pharmacopeia (USP)." Today, the USP is a non-profit organization consisting of 800 volunteer scientists, eleven elected officials, and 400 representatives of state associations and colleges of medicine and pharmacy. The USP is located in Rockville, Maryland, and its home page is located at **www.usp.org**. The USP currently provides standards for over 3,700 medications. The resulting USP DI® Advice for the Patient® can be accessed through the National Library of Medicine of the National Institutes of Health. The database is partially derived from lists of federally approved medications in the Food and Drug Administration's (FDA) Drug Approvals database.[39]

While the FDA database is rather large and difficult to navigate, the Phamacopeia is both user-friendly and free to use. It covers more than 9,000 prescription and over-the-counter medications. To access this database, simply type the following hyperlink into your Web browser: **http://www.nlm.nih.gov/medlineplus/druginformation.html**. To view examples of a given medication (brand names, category, description, preparation, proper use, precautions, side effects, etc.), simply follow the hyperlinks indicated within the United States Pharmacopoeia (USP). It is important to read the disclaimer by the USP (**http://www.nlm.nih.gov/medlineplus/drugdisclaimer.html**) before using the information provided.

Commercial Databases

In addition to the medications listed in the USP above, a number of commercial sites are available by subscription to physicians and their institutions. You may be able to access these sources from your local medical library or your doctor's office.

[39] Though cumbersome, the FDA database can be freely browsed at the following site: **www.fda.gov/cder/da/da.htm**.

Reuters Health Drug Database

The Reuters Health Drug Database can be searched by keyword at the hyperlink: **http://www.reutershealth.com/frame2/drug.html**.

Mosby's GenRx

Mosby's GenRx database (also available on CD-Rom and book format) covers 45,000 drug products including generics and international brands. It provides prescribing information, drug interactions, and patient information. Information can be obtained at the following hyperlink: **http://www.genrx.com/Mosby/PhyGenRx/group.html**.

Physicians Desk Reference

The Physicians Desk Reference database (also available in CD-Rom and book format) is a full-text drug database. The database is searchable by brand name, generic name or by indication. It features multiple drug interactions reports. Information can be obtained at the following hyperlink: **http://physician.pdr.net/physician/templates/en/acl/psuser_t.htm**.

Other Web Sites

A number of additional Web sites discuss drug information. As an example, you may like to look at **www.drugs.com** which reproduces the information in the Pharmacopeia as well as commercial information. You may also want to consider the Web site of the Medical Letter, Inc. which allows users to download articles on various drugs and therapeutics for a nominal fee: **http://www.medletter.com/**.

Contraindications and Interactions (Hidden Dangers)

Some of the medications mentioned in the previous discussions can be problematic for patients with MDMA dependence--not because they are used in the treatment process, but because of contraindications, or side effects. Medications with contraindications are those that could react with drugs used to treat MDMA dependence or potentially create deleterious side effects in patients with MDMA dependence. You should ask your physician

about any contraindications, especially as these might apply to other medications that you may be taking for common ailments.

Drug-drug interactions occur when two or more drugs react with each other. This drug-drug interaction may cause you to experience an unexpected side effect. Drug interactions may make your medications less effective, cause unexpected side effects, or increase the action of a particular drug. Some drug interactions can even be harmful to you.

Be sure to read the label every time you use a nonprescription or prescription drug, and take the time to learn about drug interactions. These precautions may be critical to your health. You can reduce the risk of potentially harmful drug interactions and side effects with a little bit of knowledge and common sense.

Drug labels contain important information about ingredients, uses, warnings, and directions which you should take the time to read and understand. Labels also include warnings about possible drug interactions. Further, drug labels may change as new information becomes available. This is why it's especially important to read the label every time you use a medication. When your doctor prescribes a new drug, discuss all over-the-counter and prescription medications, dietary supplements, vitamins, botanicals, minerals and herbals you take as well as the foods you eat. Ask your pharmacist for the package insert for each prescription drug you take. The package insert provides more information about potential drug interactions.

A Final Warning

At some point, you may hear of alternative medications from friends, relatives, or in the news media. Advertisements may suggest that certain alternative drugs can produce positive results for patients with MDMA dependence. Exercise caution--some of these drugs may have fraudulent claims, and others may actually hurt you. The Food and Drug Administration (FDA) is the official U.S. agency charged with discovering which medications are likely to improve the health of patients with MDMA dependence. The FDA warns patients to watch out for[40]:

- Secret formulas (real scientists share what they know)

[40] This section has been adapted from **http://www.fda.gov/opacom/lowlit/medfraud.html**.

- Amazing breakthroughs or miracle cures (real breakthroughs don't happen very often; when they do, real scientists do not call them amazing or miracles)
- Quick, painless, or guaranteed cures
- If it sounds too good to be true, it probably isn't true.

If you have any questions about any kind of medical treatment, the FDA may have an office near you. Look for their number in the blue pages of the phone book. You can also contact the FDA through its toll-free number, 1-888-INFO-FDA (1-888-463-6332), or on the World Wide Web at **www.fda.gov**.

General References

In addition to the resources provided earlier in this chapter, the following general references describe medications (sorted alphabetically by title; hyperlinks provide rankings, information and reviews at Amazon.com):

- **Complete Guide to Prescription and Nonprescription Drugs 2001 (Complete Guide to Prescription and Nonprescription Drugs, 2001)** by H. Winter Griffith, Paperback 16th edition (2001), Medical Surveillance; ISBN: 0942447417; **http://www.amazon.com/exec/obidos/ASIN/039952634X/icongroupinterna**
- **The Essential Guide to Prescription Drugs, 2001** by James J. Rybacki, James W. Long; Paperback - 1274 pages (2001), Harper Resource; ISBN: 0060958162; **http://www.amazon.com/exec/obidos/ASIN/0060958162/icongroupinterna**
- **Handbook of Commonly Prescribed Drugs** by G. John Digregorio, Edward J. Barbieri; Paperback 16th edition (2001), Medical Surveillance; ISBN: 0942447417; **http://www.amazon.com/exec/obidos/ASIN/0942447417/icongroupinterna**
- **Johns Hopkins Complete Home Encyclopedia of Drugs 2nd ed.** by Simeon Margolis (Ed.), Johns Hopkins; Hardcover - 835 pages (2000), Rebus; ISBN: 0929661583; **http://www.amazon.com/exec/obidos/ASIN/0929661583/icongroupinterna**
- **Medical Pocket Reference: Drugs 2002** by Springhouse Paperback 1st edition (2001), Lippincott Williams & Wilkins Publishers; ISBN: 1582550964; **http://www.amazon.com/exec/obidos/ASIN/1582550964/icongroupinterna**

- **PDR** by Medical Economics Staff, Medical Economics Staff Hardcover - 3506 pages 55th edition (2000), Medical Economics Company; ISBN: 1563633752; **http://www.amazon.com/exec/obidos/ASIN/1563633752/icongroupinterna**
- **Pharmacy Simplified: A Glossary of Terms** by James Grogan; Paperback - 432 pages, 1st edition (2001), Delmar Publishers; ISBN: 0766828581; **http://www.amazon.com/exec/obidos/ASIN/0766828581/icongroupinterna**
- **Physician Federal Desk Reference** by Christine B. Fraizer; Paperback 2nd edition (2001), Medicode Inc; ISBN: 1563373971; **http://www.amazon.com/exec/obidos/ASIN/1563373971/icongroupinterna**
- **Physician's Desk Reference Supplements** Paperback - 300 pages, 53 edition (1999), ISBN: 1563632950; **http://www.amazon.com/exec/obidos/ASIN/1563632950/icongroupinterna**

APPENDIX B. RESEARCHING ALTERNATIVE MEDICINE

Overview

Complementary and alternative medicine (CAM) is one of the most contentious aspects of modern medical practice. You may have heard of these treatments on the radio or on television. Maybe you have seen articles written about these treatments in magazines, newspapers, or books. Perhaps your friends or doctor have mentioned alternatives.

In this chapter, we will begin by giving you a broad perspective on complementary and alternative therapies. Next, we will introduce you to official information sources on CAM relating to MDMA dependence. Finally, at the conclusion of this chapter, we will provide a list of readings on MDMA dependence from various authors. We will begin, however, with the National Center for Complementary and Alternative Medicine's (NCCAM) overview of complementary and alternative medicine.

What Is CAM?[41]

Complementary and alternative medicine (CAM) covers a broad range of healing philosophies, approaches, and therapies. Generally, it is defined as those treatments and healthcare practices which are not taught in medical schools, used in hospitals, or reimbursed by medical insurance companies. Many CAM therapies are termed "holistic," which generally means that the healthcare practitioner considers the whole person, including physical, mental, emotional, and spiritual health. Some of these therapies are also known as "preventive," which means that the practitioner educates and

[41] Adapted from the NCCAM: **http://nccam.nih.gov/nccam/fcp/faq/index.html#what-is**.

treats the person to prevent health problems from arising, rather than treating symptoms after problems have occurred.

People use CAM treatments and therapies in a variety of ways. Therapies are used alone (often referred to as alternative), in combination with other alternative therapies, or in addition to conventional treatment (sometimes referred to as complementary). Complementary and alternative medicine, or "integrative medicine," includes a broad range of healing philosophies, approaches, and therapies. Some approaches are consistent with physiological principles of Western medicine, while others constitute healing systems with non-Western origins. While some therapies are far outside the realm of accepted Western medical theory and practice, others are becoming established in mainstream medicine.

Complementary and alternative therapies are used in an effort to prevent illness, reduce stress, prevent or reduce side effects and symptoms, or control or cure disease. Some commonly used methods of complementary or alternative therapy include mind/body control interventions such as visualization and relaxation, manual healing including acupressure and massage, homeopathy, vitamins or herbal products, and acupuncture.

What Are the Domains of Alternative Medicine?[42]

The list of CAM practices changes continually. The reason being is that these new practices and therapies are often proved to be safe and effective, and therefore become generally accepted as "mainstream" healthcare practices. Today, CAM practices may be grouped within five major domains: (1) alternative medical systems, (2) mind-body interventions, (3) biologically-based treatments, (4) manipulative and body-based methods, and (5) energy therapies. The individual systems and treatments comprising these categories are too numerous to list in this sourcebook. Thus, only limited examples are provided within each.

Alternative Medical Systems

Alternative medical systems involve complete systems of theory and practice that have evolved independent of, and often prior to, conventional biomedical approaches. Many are traditional systems of medicine that are

[42] Adapted from the NCCAM: **http://nccam.nih.gov/nccam/fcp/classify/index.html**.

practiced by individual cultures throughout the world, including a number of venerable Asian approaches.

Traditional oriental medicine emphasizes the balance or disturbances of qi (pronounced chi) or vital energy in health and disease, respectively. Traditional oriental medicine consists of a group of techniques and methods including acupuncture, herbal medicine, oriental massage, and qi gong (a form of energy therapy). Acupuncture involves stimulating specific anatomic points in the body for therapeutic purposes, usually by puncturing the skin with a thin needle.

Ayurveda is India's traditional system of medicine. Ayurvedic medicine (meaning "science of life") is a comprehensive system of medicine that places equal emphasis on body, mind, and spirit. Ayurveda strives to restore the innate harmony of the individual. Some of the primary Ayurvedic treatments include diet, exercise, meditation, herbs, massage, exposure to sunlight, and controlled breathing.

Other traditional healing systems have been developed by the world's indigenous populations. These populations include Native American, Aboriginal, African, Middle Eastern, Tibetan, and Central and South American cultures. Homeopathy and naturopathy are also examples of complete alternative medicine systems.

Homeopathic medicine is an unconventional Western system that is based on the principle that "like cures like," i.e., that the same substance that in large doses produces the symptoms of an illness, in very minute doses cures it. Homeopathic health practitioners believe that the more dilute the remedy, the greater its potency. Therefore, they use small doses of specially prepared plant extracts and minerals to stimulate the body's defense mechanisms and healing processes in order to treat illness.

Naturopathic medicine is based on the theory that disease is a manifestation of alterations in the processes by which the body naturally heals itself and emphasizes health restoration rather than disease treatment. Naturopathic physicians employ an array of healing practices, including the following: diet and clinical nutrition, homeopathy, acupuncture, herbal medicine, hydrotherapy (the use of water in a range of temperatures and methods of applications), spinal and soft-tissue manipulation, physical therapies (such as those involving electrical currents, ultrasound, and light), therapeutic counseling, and pharmacology.

Mind-Body Interventions

Mind-body interventions employ a variety of techniques designed to facilitate the mind's capacity to affect bodily function and symptoms. Only a select group of mind-body interventions having well-documented theoretical foundations are considered CAM. For example, patient education and cognitive-behavioral approaches are now considered "mainstream." On the other hand, complementary and alternative medicine includes meditation, certain uses of hypnosis, dance, music, and art therapy, as well as prayer and mental healing.

Biological-Based Therapies

This category of CAM includes natural and biological-based practices, interventions, and products, many of which overlap with conventional medicine's use of dietary supplements. This category includes herbal, special dietary, orthomolecular, and individual biological therapies.

Herbal therapy employs an individual herb or a mixture of herbs for healing purposes. An herb is a plant or plant part that produces and contains chemical substances that act upon the body. Special diet therapies, such as those proposed by Drs. Atkins, Ornish, Pritikin, and Weil, are believed to prevent and/or control illness as well as promote health. Orthomolecular therapies aim to treat disease with varying concentrations of chemicals such as magnesium, melatonin, and mega-doses of vitamins. Biological therapies include, for example, the use of laetrile and shark cartilage to treat cancer and the use of bee pollen to treat autoimmune and inflammatory diseases.

Manipulative and Body-Based Methods

This category includes methods that are based on manipulation and/or movement of the body. For example, chiropractors focus on the relationship between structure and function, primarily pertaining to the spine, and how that relationship affects the preservation and restoration of health. Chiropractors use manipulative therapy as an integral treatment tool.

In contrast, osteopaths place particular emphasis on the musculoskeletal system and practice osteopathic manipulation. Osteopaths believe that all of the body's systems work together and that disturbances in one system may have an impact upon function elsewhere in the body. Massage therapists manipulate the soft tissues of the body to normalize those tissues.

Energy Therapies

Energy therapies focus on energy fields originating within the body (biofields) or those from other sources (electromagnetic fields). Biofield therapies are intended to affect energy fields (the existence of which is not yet experimentally proven) that surround and penetrate the human body. Some forms of energy therapy manipulate biofields by applying pressure and/or manipulating the body by placing the hands in or through these fields. Examples include Qi gong, Reiki and Therapeutic Touch.

Qi gong is a component of traditional oriental medicine that combines movement, meditation, and regulation of breathing to enhance the flow of vital energy (qi) in the body, improve blood circulation, and enhance immune function. Reiki, the Japanese word representing Universal Life Energy, is based on the belief that, by channeling spiritual energy through the practitioner, the spirit is healed and, in turn, heals the physical body. Therapeutic Touch is derived from the ancient technique of "laying-on of hands." It is based on the premises that the therapist's healing force affects the patient's recovery and that healing is promoted when the body's energies are in balance. By passing their hands over the patient, these healers identify energy imbalances.

Bioelectromagnetic-based therapies involve the unconventional use of electromagnetic fields to treat illnesses or manage pain. These therapies are often used to treat asthma, cancer, and migraine headaches. Types of electromagnetic fields which are manipulated in these therapies include pulsed fields, magnetic fields, and alternating current or direct current fields.

Can Alternatives Affect My Treatment?

A critical issue in pursuing complementary alternatives mentioned thus far is the risk that these might have undesirable interactions with your medical treatment. It becomes all the more important to speak with your doctor who can offer advice on the use of alternatives. Official sources confirm this view. Though written for women, we find that the National Women's Health Information Center's advice on pursuing alternative medicine is appropriate for patients of both genders and all ages.[43]

[43] Adapted from **http://www.4woman.gov/faq/alternative.htm**.

Is It Okay to Want Both Traditional and Alternative Medicine?

Should you wish to explore non-traditional types of treatment, be sure to discuss all issues concerning treatments and therapies with your healthcare provider, whether a physician or practitioner of complementary and alternative medicine. Competent healthcare management requires knowledge of both conventional and alternative therapies you are taking for the practitioner to have a complete picture of your treatment plan.

The decision to use complementary and alternative treatments is an important one. Consider before selecting an alternative therapy, the safety and effectiveness of the therapy or treatment, the expertise and qualifications of the healthcare practitioner, and the quality of delivery. These topics should be considered when selecting any practitioner or therapy.

Finding CAM References on MDMA Dependence

Having read the previous discussion, you may be wondering which complementary or alternative treatments might be appropriate for MDMA dependence. For the remainder of this chapter, we will direct you to a number of official sources which can assist you in researching studies and publications. Some of these articles are rather technical, so some patience may be required.

National Center for Complementary and Alternative Medicine

The National Center for Complementary and Alternative Medicine (NCCAM) of the National Institutes of Health (**http://nccam.nih.gov**) has created a link to the National Library of Medicine's databases to allow patients to search for articles that specifically relate to MDMA dependence and complementary medicine. To search the database, go to the following Web site: **www.nlm.nih.gov/nccam/camonpubmed.html**. Select "CAM on PubMed." Enter "MDMA dependence" (or synonyms) into the search box. Click "Go." The following references provide information on particular aspects of complementary and alternative medicine (CAM) that are related to MDMA dependence:

- **Drug dependence studies and regulations: an overview of the past and present.**
  Author(s): Harris LS.

Source: Nihon Shinkei Seishin Yakurigaku Zasshi. 2001 November; 21(5): 171-4. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11797422&dopt=Abstract

- **Electrophysiological evidence of serotonergic impairment in long-term MDMA ("ecstasy") users.**
  Author(s): Croft RJ, Klugman A, Baldeweg T, Gruzelier JH.
  Source: The American Journal of Psychiatry. 2001 October; 158(10): 1687-92.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11579003&dopt=Abstract

Additional Web Resources

A number of additional Web sites offer encyclopedic information covering CAM and related topics. The following is a representative sample:

- Alternative Medicine Foundation, Inc.: **http://www.herbmed.org/**
- AOL: **http://search.aol.com/cat.adp?id=169&layer=&from=subcats**
- Chinese Medicine: **http://www.newcenturynutrition.com/**
- drkoop.com®: **http://www.drkoop.com/InteractiveMedicine/IndexC.html**
- Family Village: **http://www.familyvillage.wisc.edu/med_altn.htm**
- Google: **http://directory.google.com/Top/Health/Alternative/**
- Healthnotes: **http://www.thedacare.org/healthnotes/**
- Open Directory Project: **http://dmoz.org/Health/Alternative/**
- TPN.com: **http://www.tnp.com/**
- Yahoo.com: **http://dir.yahoo.com/Health/Alternative_Medicine/**
- WebMD®Health: **http://my.webmd.com/drugs_and_herbs**
- WellNet: **http://www.wellnet.ca/herbsa-c.htm**
- WholeHealthMD.com: **http://www.wholehealthmd.com/reflib/0,1529,,00.html**

The following is a specific Web list relating to MDMA dependence; please note that any particular subject below may indicate either a therapeutic use, or a contraindication (potential danger), and does not reflect an official recommendation:

- **Alternative Therapy**

  Ecstasy Breathing
  Source: The Canoe version of A Dictionary of Alternative-Medicine Methods, by Priorities for Health editor Jack Raso, M.S., R.D.
  Hyperlink: http://www.canoe.ca/AltmedDictionary/e.html

  SkyDancing Tantra
  Source: The Canoe version of A Dictionary of Alternative-Medicine Methods, by Priorities for Health editor Jack Raso, M.S., R.D.
  Hyperlink: http://www.canoe.ca/AltmedDictionary/s.html

- **Herbs and Supplements**

  Ephedra
  Source: Prima Communications, Inc.
  Hyperlink: http://www.personalhealthzone.com/pg000154.html

  Hydrastis
  Alternative names: Goldenseal; Hydrastis canadensis L.
  Source: Alternative Medicine Foundation, Inc.;
  www.amfoundation.org
  Hyperlink: http://www.herbmed.org/

  Sassafras
  Alternative names: Sassafras albidum (Nuttall)
  Source: Alternative Medicine Foundation, Inc.;
  www.amfoundation.org
  Hyperlink: http://www.herbmed.org/

General References

A good place to find general background information on CAM is the National Library of Medicine. It has prepared within the MEDLINEplus system an information topic page dedicated to complementary and

alternative medicine. To access this page, go to the MEDLINEplus site at: **www.nlm.nih.gov/medlineplus/alternativemedicine.html.** This Web site provides a general overview of various topics and can lead to a number of general sources. The following additional references describe, in broad terms, alternative and complementary medicine (sorted alphabetically by title; hyperlinks provide rankings, information, and reviews at Amazon.com):

- **Clear Body, Clear Mind : The Effective Purification Program** by L. Ron Hubbard; Paperback - 312 pages (June 2002), Bridge Publications; ISBN: 1573182249; **http://www.amazon.com/exec/obidos/ASIN/1573182249/icongroupinterna**
- **End Your Addiction Now: The Proven Nutritional Supplement Program That Can Set You Free** by Charles Gant, Greg Lewis; Hardcover - 320 pages (January 2002), Warner Books; ISBN: 0446527238; **http://www.amazon.com/exec/obidos/ASIN/0446527238/icongroupinterna**
- **Reaching New Highs: Alternative Therapies for Drug Addicts** by H. K. Heggenhougen; Hardcover (June 1997), Jason Aronson; ISBN: 0765700360; **http://www.amazon.com/exec/obidos/ASIN/0765700360/icongroupinterna**
- **The Tao of Sobriety : Helping You to Recover from Alcohol and Drug Addiction** by David Gregson, et al; Paperback - 176 pages, 1st edition (January 2002), St. Martin's Press; ISBN: 0312242506; **http://www.amazon.com/exec/obidos/ASIN/0312242506/icongroupinterna**

For additional information on complementary and alternative medicine, ask your doctor or write to:

National Institutes of Health
National Center for Complementary and Alternative Medicine Clearinghouse
P. O. Box 8218
Silver Spring, MD 20907-8218

APPENDIX C. RESEARCHING NUTRITION

Overview

Since the time of Hippocrates, doctors have understood the importance of diet and nutrition to patients' health and well-being. Since then, they have accumulated an impressive archive of studies and knowledge dedicated to this subject. Based on their experience, doctors and healthcare providers may recommend particular dietary supplements to patients with MDMA dependence. Any dietary recommendation is based on a patient's age, body mass, gender, lifestyle, eating habits, food preferences, and health condition. It is therefore likely that different patients with MDMA dependence may be given different recommendations. Some recommendations may be directly related to MDMA dependence, while others may be more related to the patient's general health. These recommendations, themselves, may differ from what official sources recommend for the average person.

In this chapter we will begin by briefly reviewing the essentials of diet and nutrition that will broadly frame more detailed discussions of MDMA dependence. We will then show you how to find studies dedicated specifically to nutrition and MDMA dependence.

Food and Nutrition: General Principles

What Are Essential Foods?

Food is generally viewed by official sources as consisting of six basic elements: (1) fluids, (2) carbohydrates, (3) protein, (4) fats, (5) vitamins, and (6) minerals. Consuming a combination of these elements is considered to be a healthy diet:

- **Fluids** are essential to human life as 80-percent of the body is composed of water. Water is lost via urination, sweating, diarrhea, vomiting, diuretics (drugs that increase urination), caffeine, and physical exertion.
- **Carbohydrates** are the main source for human energy (thermoregulation) and the bulk of typical diets. They are mostly classified as being either simple or complex. Simple carbohydrates include sugars which are often consumed in the form of cookies, candies, or cakes. Complex carbohydrates consist of starches and dietary fibers. Starches are consumed in the form of pastas, breads, potatoes, rice, and other foods. Soluble fibers can be eaten in the form of certain vegetables, fruits, oats, and legumes. Insoluble fibers include brown rice, whole grains, certain fruits, wheat bran and legumes.
- **Proteins** are eaten to build and repair human tissues. Some foods that are high in protein are also high in fat and calories. Food sources for protein include nuts, meat, fish, cheese, and other dairy products.
- **Fats** are consumed for both energy and the absorption of certain vitamins. There are many types of fats, with many general publications recommending the intake of unsaturated fats or those low in cholesterol.

Vitamins and minerals are fundamental to human health, growth, and, in some cases, disease prevention. Most are consumed in your diet (exceptions being vitamins K and D which are produced by intestinal bacteria and sunlight on the skin, respectively). Each vitamin and mineral plays a different role in health. The following outlines essential vitamins:

- **Vitamin A** is important to the health of your eyes, hair, bones, and skin; sources of vitamin A include foods such as eggs, carrots, and cantaloupe.
- **Vitamin B^1**, also known as thiamine, is important for your nervous system and energy production; food sources for thiamine include meat, peas, fortified cereals, bread, and whole grains.
- **Vitamin B^2**, also known as riboflavin, is important for your nervous system and muscles, but is also involved in the release of proteins from

nutrients; food sources for riboflavin include dairy products, leafy vegetables, meat, and eggs.

- **Vitamin B^3**, also known as niacin, is important for healthy skin and helps the body use energy; food sources for niacin include peas, peanuts, fish, and whole grains
- **Vitamin B^6**, also known as pyridoxine, is important for the regulation of cells in the nervous system and is vital for blood formation; food sources for pyridoxine include bananas, whole grains, meat, and fish.
- **Vitamin B^{12}** is vital for a healthy nervous system and for the growth of red blood cells in bone marrow; food sources for vitamin B^{12} include yeast, milk, fish, eggs, and meat.
- **Vitamin C** allows the body's immune system to fight various diseases, strengthens body tissue, and improves the body's use of iron; food sources for vitamin C include a wide variety of fruits and vegetables.
- **Vitamin D** helps the body absorb calcium which strengthens bones and teeth; food sources for vitamin D include oily fish and dairy products.
- **Vitamin E** can help protect certain organs and tissues from various degenerative diseases; food sources for vitamin E include margarine, vegetables, eggs, and fish.
- **Vitamin K** is essential for bone formation and blood clotting; common food sources for vitamin K include leafy green vegetables.
- **Folic Acid** maintains healthy cells and blood and, when taken by a pregnant woman, can prevent her fetus from developing neural tube defects; food sources for folic acid include nuts, fortified breads, leafy green vegetables, and whole grains.

It should be noted that one can overdose on certain vitamins which become toxic if consumed in excess (e.g. vitamin A, D, E and K).
Like vitamins, minerals are chemicals that are required by the body to remain in good health. Because the human body does not manufacture these chemicals internally, we obtain them from food and other dietary sources. The more important minerals include:

- **Calcium** is needed for healthy bones, teeth, and muscles, but also helps the nervous system function; food sources for calcium include dry beans, peas, eggs, and dairy products.
- **Chromium** is helpful in regulating sugar levels in blood; food sources for chromium include egg yolks, raw sugar, cheese, nuts, beets, whole grains, and meat.

- **Fluoride** is used by the body to help prevent tooth decay and to reinforce bone strength; sources of fluoride include drinking water and certain brands of toothpaste.
- **Iodine** helps regulate the body's use of energy by synthesizing into the hormone thyroxine; food sources include leafy green vegetables, nuts, egg yolks, and red meat.
- **Iron** helps maintain muscles and the formation of red blood cells and certain proteins; food sources for iron include meat, dairy products, eggs, and leafy green vegetables.
- **Magnesium** is important for the production of DNA, as well as for healthy teeth, bones, muscles, and nerves; food sources for magnesium include dried fruit, dark green vegetables, nuts, and seafood.
- **Phosphorous** is used by the body to work with calcium to form bones and teeth; food sources for phosphorous include eggs, meat, cereals, and dairy products.
- **Selenium** primarily helps maintain normal heart and liver functions; food sources for selenium include wholegrain cereals, fish, meat, and dairy products.
- **Zinc** helps wounds heal, the formation of sperm, and encourage rapid growth and energy; food sources include dried beans, shellfish, eggs, and nuts.

The United States government periodically publishes recommended diets and consumption levels of the various elements of food. Again, your doctor may encourage deviations from the average official recommendation based on your specific condition. To learn more about basic dietary guidelines, visit the Web site: **http://www.health.gov/dietaryguidelines/**. Based on these guidelines, many foods are required to list the nutrition levels on the food's packaging. Labeling Requirements are listed at the following site maintained by the Food and Drug Administration: **http://www.cfsan.fda.gov/~dms/lab-cons.html**. When interpreting these requirements, the government recommends that consumers become familiar with the following abbreviations before reading FDA literature:[44]

- **DVs (Daily Values):** A new dietary reference term that will appear on the food label. It is made up of two sets of references, DRVs and RDIs.
- **DRVs (Daily Reference Values):** A set of dietary references that applies to fat, saturated fat, cholesterol, carbohydrate, protein, fiber, sodium, and potassium.

[44] Adapted from the FDA: **http://www.fda.gov/fdac/special/foodlabel/dvs.html**.

- **RDIs (Reference Daily Intakes):** A set of dietary references based on the Recommended Dietary Allowances for essential vitamins and minerals and, in selected groups, protein. The name "RDI" replaces the term "U.S. RDA."
- **RDAs (Recommended Dietary Allowances):** A set of estimated nutrient allowances established by the National Academy of Sciences. It is updated periodically to reflect current scientific knowledge.

What Are Dietary Supplements?[45]

Dietary supplements are widely available through many commercial sources, including health food stores, grocery stores, pharmacies, and by mail. Dietary supplements are provided in many forms including tablets, capsules, powders, gel-tabs, extracts, and liquids. Historically in the United States, the most prevalent type of dietary supplement was a multivitamin/mineral tablet or capsule that was available in pharmacies, either by prescription or "over the counter." Supplements containing strictly herbal preparations were less widely available. Currently in the United States, a wide array of supplement products are available, including vitamin, mineral, other nutrients, and botanical supplements as well as ingredients and extracts of animal and plant origin.

The Office of Dietary Supplements (ODS) of the National Institutes of Health is the official agency of the United States which has the expressed goal of acquiring "new knowledge to help prevent, detect, diagnose, and treat disease and disability, from the rarest genetic disorder to the common cold."[46] According to the ODS, dietary supplements can have an important impact on the prevention and management of disease and on the maintenance of health.[47] The ODS notes that considerable research on the effects of dietary supplements has been conducted in Asia and Europe where

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[45] This discussion has been adapted from the NIH: **http://ods.od.nih.gov/whatare/whatare.html**.

[46] Contact: The Office of Dietary Supplements, National Institutes of Health, Building 31, Room 1B29, 31 Center Drive, MSC 2086, Bethesda, Maryland 20892-2086, Tel: (301) 435-2920, Fax: (301) 480-1845, E-mail: **ods@nih.gov**.

[47] Adapted from **http://ods.od.nih.gov/about/about.html**. The Dietary Supplement Health and Education Act defines dietary supplements as "a product (other than tobacco) intended to supplement the diet that bears or contains one or more of the following dietary ingredients: a vitamin, mineral, amino acid, herb or other botanical; or a dietary substance for use to supplement the diet by increasing the total dietary intake; or a concentrate, metabolite, constituent, extract, or combination of any ingredient described above; and intended for ingestion in the form of a capsule, powder, softgel, or gelcap, and not represented as a conventional food or as a sole item of a meal or the diet."

the use of plant products, in particular, has a long tradition. However, the overwhelming majority of supplements have not been studied scientifically. To explore the role of dietary supplements in the improvement of health care, the ODS plans, organizes, and supports conferences, workshops, and symposia on scientific topics related to dietary supplements. The ODS often works in conjunction with other NIH Institutes and Centers, other government agencies, professional organizations, and public advocacy groups.

To learn more about official information on dietary supplements, visit the ODS site at **http://ods.od.nih.gov/whatare/whatare.html**. Or contact:

The Office of Dietary Supplements
National Institutes of Health
Building 31, Room 1B29
31 Center Drive, MSC 2086
Bethesda, Maryland 20892-2086
Tel: (301) 435-2920
Fax: (301) 480-1845
E-mail: ods@nih.gov

Finding Studies on MDMA Dependence

The NIH maintains an office dedicated to patient nutrition and diet. The National Institutes of Health's Office of Dietary Supplements (ODS) offers a searchable bibliographic database called the IBIDS (International Bibliographic Information on Dietary Supplements). The IBIDS contains over 460,000 scientific citations and summaries about dietary supplements and nutrition as well as references to published international, scientific literature on dietary supplements such as vitamins, minerals, and botanicals.[48] IBIDS is available to the public free of charge through the ODS Internet page: **http://ods.od.nih.gov/databases/ibids.html**.

After entering the search area, you have three choices: (1) IBIDS Consumer Database, (2) Full IBIDS Database, or (3) Peer Reviewed Citations Only. We recommend that you start with the Consumer Database. While you may not find references for the topics that are of most interest to you, check back

[48] Adapted from **http://ods.od.nih.gov**. IBIDS is produced by the Office of Dietary Supplements (ODS) at the National Institutes of Health to assist the public, healthcare providers, educators, and researchers in locating credible, scientific information on dietary supplements. IBIDS was developed and will be maintained through an interagency partnership with the Food and Nutrition Information Center of the National Agricultural Library, U.S. Department of Agriculture.

periodically as this database is frequently updated. More studies can be found by searching the Full IBIDS Database. Healthcare professionals and researchers generally use the third option, which lists peer-reviewed citations. In all cases, we suggest that you take advantage of the "Advanced Search" option that allows you to retrieve up to 100 fully explained references in a comprehensive format. Type "MDMA dependence" (or synonyms) into the search box. To narrow the search, you can also select the "Title" field.

The following information is typical of that found when using the "Full IBIDS Database" when searching using "MDMA dependence" (or a synonym):

- **(+/-)-3,4-Methylenedioxymethamphetamine-induced changes in the basal activity and pharmacological responsiveness of nigrostriatal dopamine neurons.**
  Author(s): Laboratory of Neurophysiology, Sinai Research Institute, Detroit, MI 48235.
  Source: Kelland, M D Freeman, A S Chiodo, L A Eur-J-Pharmacol. 1989 October 4; 169(1): 11-21 0014-2999
- **2-Deoxy-D-glucose prevents and nicotinamide potentiates 3, 4-methylenedioxymethamphetamine-induced serotonin neurotoxicity.**
  Author(s): Department of Pharmacology, University of Navarra Medical School, Pamplona, Spain.
  Source: Hervias, I Lasheras, B Aguirre, N J-Neurochem. 2000 September; 75(3): 982-90 0022-3042
- **3,4-Methylenedioxymethamphetamine, serotonin and memory.**
  Author(s): Department of Neurology, Francis Scott Key Medical Center, Johns Hopkins University School of Medicine, Baltimore, Maryland.
  Source: Ricaurte, G A Markowska, A L Wenk, G L Hatzidimitriou, G Wlos, J Olton, D S J-Pharmacol-Exp-Ther. 1993 August; 266(2): 1097-105 0022-3565
- **3,4-Methylenedioxymethamphetamine-induced release of serotonin and inhibition of dorsal raphe cell firing: potentiation by L-tryptophan.**
  Author(s): Department of Psychiatry, Yale University School of Medicine, New Haven, CT 06508.
  Source: Sprouse, J S Bradberry, C W Roth, R H Aghajanian, G K Eur-J-Pharmacol. 1990 March 27; 178(3): 313-20 0014-2999
- **3-4-Methylenedioxymethamphetamine-induced acute changes in dopamine transporter function.**
  Author(s): Department of Pharmacology and Toxicology, University of Utah, Salt Lake City 84112, USA.

Source: Metzger, R R Hanson, G R Gibb, J W Fleckenstein, A E Eur-J-Pharmacol. 1998 May 22; 349(2-3): 205-10 0014-2999

- **5-HT2 receptors exert a state-dependent regulation of dopaminergic function: studies with MDL 100,907 and the amphetamine analogue, 3,4-methylenedioxymethamphetamine.**
  Author(s): Marion Merrel Dow Research Institute, Cincinnati OH 45215.
  Source: Schmidt, C J Fadayel, G M Sullivan, C K Taylor, V L Eur-J-Pharmacol. 1992 November 13; 223(1): 65-74 0014-2999

- **A study of the mechanism of MDMA ('ecstasy')-induced neurotoxicity of 5-HT neurones using chlormethiazole, dizocilpine and other protective compounds.**
  Author(s): Astra Neuroscience Research Unit, London.
  Source: Colado, M I Green, A R Br-J-Pharmacol. 1994 January; 111(1): 131-6 0007-1188

- **Acute injection of drugs with low addictive potential (delta(9)-tetrahydrocannabinol, 3,4-methylenedioxymethamphetamine, lysergic acid diamide) causes a much higher c-fos expression in limbic brain areas than highly addicting drugs (cocaine and morphine).**
  Author(s): Institute for Pharmacology and Toxicology, Otto-von-Guericke Universitat Magdeburg, Leipziger Str. 44, 39120, Magdeburg, Germany.
  Source: Erdtmann Vourliotis, M Mayer, P Riechert, U Hollt, V Brain-Res-Mol-Brain-Res. 1999 August 25; 71(2): 313-24 0169-328X

- **Amphetamine, 3,4-methylenedioxymethamphetamine, lysergic acid diethylamide, and metabolites of the catecholamine neurotransmitters are agonists of a rat trace amine receptor.**
  Author(s): Department of Physiology & Pharmacology, Oregon Health & Science University, Portland, Oregon 97201, USA.
  Source: Bunzow, J R Sonders, M S Arttamangkul, S Harrison, L M Zhang, G Quigley, D I Darland, T Suchland, K L Pasumamula, S Kennedy, J L Olson, S B Magenis, R E Amara, S G Grandy, D K Mol-Pharmacol. 2001 December; 60(6): 1181-8 0026-895X

- **An assessment of the acute effects of the serotonin releasers methylenedioxymethamphetamine, methylenedioxyamphetamine and fenfluramine on immunity in rats.**
  Author(s): Department of Pharmacology, National University of Ireland, Galway. thomas.connor@nuigalway.ie
  Source: Connor, T J Kelly, J P Leonard, B E Immunopharmacology. 2000 March; 46(3): 223-35 0162-3109

- **Antagonism of the neurotoxicity due to a single administration of methylenedioxymethamphetamine.**
  Author(s): Merrell Dow Research Institute, Cincinnati, OH 45215.
  Source: Schmidt, C J Black, C K Taylor, V L Eur-J-Pharmacol. 1990 May 31; 181(1-2): 59-70 0014-2999

- **Ascorbic acid prevents 3,4-methylenedioxymethamphetamine (MDMA)-induced hydroxyl radical formation and the behavioral and neurochemical consequences of the depletion of brain 5-HT.**
  Author(s): College of Pharmacy, University of Cincinnati, Cincinnati, Ohio 45267-0004, USA.
  Source: Shankaran, M Yamamoto, B K Gudelsky, G A Synapse. 2001 April; 40(1): 55-64 0887-4476

- **Assessment of the MDA and MDMA optical isomers in a stimulant-hallucinogen discrimination.**
  Author(s): Department of Psychology, Western Michigan University, Kalamazoo 49008, USA.
  Source: Baker, L E Taylor, M M Pharmacol-Biochem-Behavolume 1997 August; 57(4): 737-48 0091-3057

- **Behavioral effects of (+-) 3,4-methylenedioxyamphetamine (MDA) and (+-) 3,4-methylenedioxymethamphetamine (MDMA) in the pigeon: interactions with noradrenergic and serotonergic systems.**
  Author(s): Behavioral Pharmacology Laboratory, Department of Psychiatry, Uniformed Services University of the Health Sciences, Bethesda, MD 20814-4799.
  Source: Nader, M A Hoffmann, S M Barrett, J E Psychopharmacology-(Berl). 1989; 98(2): 183-8 0033-3158

- **Carrier-mediated release of serotonin by 3,4-methylenedioxymethamphetamine: implications for serotonin-dopamine interactions.**
  Author(s): Department of Psychiatry, Case Western Reserve University, Cleveland, Ohio, USA.
  Source: Gudelsky, G A Nash, J F J-Neurochem. 1996 January; 66(1): 243-9 0022-3042

- **Cerebral (1)H MRS alterations in recreational 3, 4-methylenedioxymethamphetamine (MDMA, ecstasy) users.**
  Author(s): Department of Neurology, UCLA School of Medicine, Harbor-UCLA Medical Center, Torrance, California 90502, USA. Linda_Chang@humc.edu
  Source: Chang, L Ernst, T Grob, C S Poland, R E J-Magn-Reson-Imaging. 1999 October; 10(4): 521-6 1053-1807

- **Characterization of the translocation of protein kinase C (PKC) by 3,4-methylenedioxymethamphetamine (MDMA/ecstasy) in synaptosomes: evidence for a presynaptic localization involving the serotonin transporter (SERT).**
  Author(s): Department of Psychiatry, New York University Medical Center, Millhauser Labs, New York 10016, USA.
  Source: Kramer, H K Poblete, J C Azmitia, E C Neuropsychopharmacology. 1998 October; 19(4): 265-77 0893-133X
- **Cognitive performance amongst recreational users of ecstasy;.**
  Author(s): Department of Clinical Psychology, School of Neurosciences, University of Newcastle, Newcastle upon Tyne, Tyne and Wear, UK. Jacqui.Rodgers@ncle.ac.uk
  Source: Rodgers, J Psychopharmacology-(Berl). 2000 July; 151(1): 19-24 0033-3158
- **DCCT: the ecstasy and the agony.**
  Author(s): Diabetic Department, King's College Hospital, London.
  Source: Watkins, P J Q-J-Med. 1994 May; 87(5): 315-6 0033-5622
- **Designer drugs. Assess & manage patients intoxicated with ecstasy, GHB or rohypnol--the three most commonly abused designer drugs.**
  Source: Goss, J J-Emerg-Med-Serv-JEMS. 2001 June; 26(6): 84-7, 90-3; quiz 94 0197-2510

Federal Resources on Nutrition

In addition to the IBIDS, the United States Department of Health and Human Services (HHS) and the United States Department of Agriculture (USDA) provide many sources of information on general nutrition and health. Recommended resources include:

- healthfinder®, HHS's gateway to health information, including diet and nutrition:
  http://www.healthfinder.gov/scripts/SearchContext.asp?topic=238&page=0
- The United States Department of Agriculture's Web site dedicated to nutrition information: **www.nutrition.gov**
- The Food and Drug Administration's Web site for federal food safety information: **www.foodsafety.gov**
- The National Action Plan on Overweight and Obesity sponsored by the United States Surgeon General:
  http://www.surgeongeneral.gov/topics/obesity/

- The Center for Food Safety and Applied Nutrition has an Internet site sponsored by the Food and Drug Administration and the Department of Health and Human Services: **http://vm.cfsan.fda.gov/**
- Center for Nutrition Policy and Promotion sponsored by the United States Department of Agriculture: **http://www.usda.gov/cnpp/**
- Food and Nutrition Information Center, National Agricultural Library sponsored by the United States Department of Agriculture: **http://www.nal.usda.gov/fnic/**
- Food and Nutrition Service sponsored by the United States Department of Agriculture: **http://www.fns.usda.gov/fns/**

Additional Web Resources

A number of additional Web sites offer encyclopedic information covering food and nutrition. The following is a representative sample:

- AOL: **http://search.aol.com/cat.adp?id=174&layer=&from=subcats**
- Family Village: **http://www.familyvillage.wisc.edu/med_nutrition.html**
- Google: **http://directory.google.com/Top/Health/Nutrition/**
- Healthnotes: **http://www.thedacare.org/healthnotes/**
- Open Directory Project: **http://dmoz.org/Health/Nutrition/**
- Yahoo.com: **http://dir.yahoo.com/Health/Nutrition/**
- WebMD®Health: **http://my.webmd.com/nutrition**
- WholeHealthMD.com: **http://www.wholehealthmd.com/reflib/0,1529,,00.html**

Vocabulary Builder

The following vocabulary builder defines words used in the references in this chapter that have not been defined in previous chapters:

Bacteria: Unicellular prokaryotic microorganisms which generally possess rigid cell walls, multiply by cell division, and exhibit three principal forms: round or coccal, rodlike or bacillary, and spiral or spirochetal. [NIH]

Capsules: Hard or soft soluble containers used for the oral administration of medicine. [NIH]

Carbohydrate: An aldehyde or ketone derivative of a polyhydric alcohol,

particularly of the pentahydric and hexahydric alcohols. They are so named because the hydrogen and oxygen are usually in the proportion to form water, (CH2O)n. The most important carbohydrates are the starches, sugars, celluloses, and gums. They are classified into mono-, di-, tri-, poly- and heterosaccharides. [EU]

Cerebral: Of or pertaining of the cerebrum or the brain. [EU]

Chlormethiazole: A sedative and anticonvulsant often used in the treatment of alcohol withdrawal. Chlormethiazole has also been proposed as a neuroprotective agent. The mechanism of its therapeutic activity is not entirely clear, but it does potentiate gaba receptors response and it may also affect glycine receptors. [NIH]

Cholesterol: The principal sterol of all higher animals, distributed in body tissues, especially the brain and spinal cord, and in animal fats and oils. [NIH]

Degenerative: Undergoing degeneration : tending to degenerate; having the character of or involving degeneration; causing or tending to cause degeneration. [EU]

Diamide: A sulfhydryl reagent which oxidizes sulfhydryl groups to the disulfide form. It is a radiation-sensitizing agent of anoxic bacterial and mammalian cells. [NIH]

Diarrhea: Passage of excessively liquid or excessively frequent stools. [NIH]

Dorsal: 1. pertaining to the back or to any dorsum. 2. denoting a position more toward the back surface than some other object of reference; same as posterior in human anatomy; superior in the anatomy of quadrupeds. [EU]

Fenfluramine: A centrally active drug that apparently both blocks serotonin uptake and provokes transport-mediated serotonin release. [NIH]

Glucose: D-glucose, a monosaccharide (hexose), C6H12O6, also known as dextrose (q.v.), found in certain foodstuffs, especially fruits, and in the normal blood of all animals. It is the end product of carbohydrate metabolism and is the chief source of energy for living organisms, its utilization being controlled by insulin. Excess glucose is converted to glycogen and stored in the liver and muscles for use as needed and, beyond that, is converted to fat and stored as adipose tissue. Glucose appears in the urine in diabetes mellitus. [EU]

Hormone: A chemical substance formed in glands in the body and carried in the blood to organs and tissues, where it influences function, structure, and behavior. [NIH]

Immunity: The condition of being immune; the protection against infectious disease conferred either by the immune response generated by immunization or previous infection or by other nonimmunologic factors (innate i.). [EU]

Intestinal: Pertaining to the intestine. [EU]

Iodine: A nonmetallic element of the halogen group that is represented by the atomic symbol I, atomic number 53, and atomic weight of 126.90. It is a nutritionally essential element, especially important in thyroid hormone synthesis. In solution, it has anti-infective properties and is used topically. [NIH]

Limbic: Pertaining to a limbus, or margin; forming a border around. [EU]

Metabolite: Any substance produced by metabolism or by a metabolic process. [EU]

Morphine: The principal alkaloid in opium and the prototype opiate analgesic and narcotic. Morphine has widespread effects in the central nervous system and on smooth muscle. [NIH]

Neural: 1. pertaining to a nerve or to the nerves. 2. situated in the region of the spinal axis, as the neutral arch. [EU]

Neurology: A medical specialty concerned with the study of the structures, functions, and diseases of the nervous system. [NIH]

Neurophysiology: The scientific discipline concerned with the physiology of the nervous system. [NIH]

Neurosciences: The scientific disciplines concerned with the embryology, anatomy, physiology, biochemistry, pharmacology, etc., of the nervous sytem. [NIH]

Neurotransmitters: Endogenous signaling molecules that alter the behavior of neurons or effector cells. Neurotransmitter is used here in its most general sense, including not only messengers that act directly to regulate ion channels, but also those that act through second messenger systems, and those that act at a distance from their site of release. Included are neuromodulators, neuroregulators, neuromediators, and neurohumors, whether or not acting at synapses. [NIH]

Niacin: Water-soluble vitamin of the B complex occurring in various animal and plant tissues. Required by the body for the formation of coenzymes NAD and NADP. Has pellagra-curative, vasodilating, and antilipemic properties. [NIH]

Potassium: An element that is in the alkali group of metals. It has an atomic symbol K, atomic number 19, and atomic weight 39.10. It is the chief cation in the intracellular fluid of muscle and other cells. Potassium ion is a strong electrolyte and it plays a significant role in the regulation of fluid volume and maintenance of the water-electrolyte balance. [NIH]

Presynaptic: Situated proximal to a synapse, or occurring before the synapse is crossed. [EU]

Proteins: Polymers of amino acids linked by peptide bonds. The specific

sequence of amino acids determines the shape and function of the protein. [NIH]

Riboflavin: Nutritional factor found in milk, eggs, malted barley, liver, kidney, heart, and leafy vegetables. The richest natural source is yeast. It occurs in the free form only in the retina of the eye, in whey, and in urine; its principal forms in tissues and cells are as FMN and FAD. [NIH]

Selenium: An element with the atomic symbol Se, atomic number 34, and atomic weight 78.96. It is an essential micronutrient for mammals and other animals but is toxic in large amounts. Selenium protects intracellular structures against oxidative damage. It is an essential component of glutathione peroxidase. [NIH]

Synaptosomes: Pinched-off nerve endings and their contents of vesicles and cytoplasm together with the attached subsynaptic area of the membrane of the post-synaptic cell. They are largely artificial structures produced by fractionation after selective centrifugation of nervous tissue homogenates. [NIH]

Thermoregulation: Heat regulation. [EU]

Thyroxine: An amino acid of the thyroid gland which exerts a stimulating effect on thyroid metabolism. [NIH]

Tryptophan: An essential amino acid that is necessary for normal growth in infants and for nitrogen balance in adults. It is a precursor serotonin and niacin. [NIH]

APPENDIX D. FINDING MEDICAL LIBRARIES

Overview

At a medical library you can find medical texts and reference books, consumer health publications, specialty newspapers and magazines, as well as medical journals. In this Appendix, we show you how to quickly find a medical library in your area.

Preparation

Before going to the library, highlight the references mentioned in this sourcebook that you find interesting. Focus on those items that are not available via the Internet, and ask the reference librarian for help with your search. He or she may know of additional resources that could be helpful to you. Most importantly, your local public library and medical libraries have Interlibrary Loan programs with the National Library of Medicine (NLM), one of the largest medical collections in the world. According to the NLM, most of the literature in the general and historical collections of the National Library of Medicine is available on interlibrary loan to any library. NLM's interlibrary loan services are only available to libraries. If you would like to access NLM medical literature, then visit a library in your area that can request the publications for you.[49]

[49] Adapted from the NLM: **http://www.nlm.nih.gov/psd/cas/interlibrary.html**.

Finding a Local Medical Library

The quickest method to locate medical libraries is to use the Internet-based directory published by the National Network of Libraries of Medicine (NN/LM). This network includes 4626 members and affiliates that provide many services to librarians, health professionals, and the public. To find a library in your area, simply visit **http://nnlm.gov/members/adv.html** or call 1-800-338-7657.

Medical Libraries Open to the Public

In addition to the NN/LM, the National Library of Medicine (NLM) lists a number of libraries that are generally open to the public and have reference facilities. The following is the NLM's list plus hyperlinks to each library Web site. These Web pages can provide information on hours of operation and other restrictions. The list below is a small sample of libraries recommended by the National Library of Medicine (sorted alphabetically by name of the U.S. state or Canadian province where the library is located):[50]

- **Alabama:** Health InfoNet of Jefferson County (Jefferson County Library Cooperative, Lister Hill Library of the Health Sciences), **http://www.uab.edu/infonet/**
- **Alabama:** Richard M. Scrushy Library (American Sports Medicine Institute), **http://www.asmi.org/LIBRARY.HTM**
- **Arizona:** Samaritan Regional Medical Center: The Learning Center (Samaritan Health System, Phoenix, Arizona), **http://www.samaritan.edu/library/bannerlibs.htm**
- **California:** Kris Kelly Health Information Center (St. Joseph Health System), **http://www.humboldt1.com/~kkhic/index.html**
- **California:** Community Health Library of Los Gatos (Community Health Library of Los Gatos), **http://www.healthlib.org/orgresources.html**
- **California:** Consumer Health Program and Services (CHIPS) (County of Los Angeles Public Library, Los Angeles County Harbor-UCLA Medical Center Library) - Carson, CA, **http://www.colapublib.org/services/chips.html**
- **California:** Gateway Health Library (Sutter Gould Medical Foundation)
- **California:** Health Library (Stanford University Medical Center), **http://www-med.stanford.edu/healthlibrary/**

[50] Abstracted from **http://www.nlm.nih.gov/medlineplus/libraries.html**.

- **California:** Patient Education Resource Center - Health Information and Resources (University of California, San Francisco), **http://sfghdean.ucsf.edu/barnett/PERC/default.asp**
- **California:** Redwood Health Library (Petaluma Health Care District), **http://www.phcd.org/rdwdlib.html**
- **California:** San José PlaneTree Health Library, **http://planetreesanjose.org/**
- **California:** Sutter Resource Library (Sutter Hospitals Foundation), **http://go.sutterhealth.org/comm/resc-library/sac-resources.html**
- **California:** University of California, Davis. Health Sciences Libraries
- **California:** ValleyCare Health Library & Ryan Comer Cancer Resource Center (ValleyCare Health System), **http://www.valleycare.com/library.html**
- **California:** Washington Community Health Resource Library (Washington Community Health Resource Library), **http://www.healthlibrary.org/**
- **Colorado:** William V. Gervasini Memorial Library (Exempla Healthcare), **http://www.exempla.org/conslib.htm**
- **Connecticut:** Hartford Hospital Health Science Libraries (Hartford Hospital), **http://www.harthosp.org/library/**
- **Connecticut:** Healthnet: Connecticut Consumer Health Information Center (University of Connecticut Health Center, Lyman Maynard Stowe Library), **http://library.uchc.edu/departm/hnet/**
- **Connecticut:** Waterbury Hospital Health Center Library (Waterbury Hospital), **http://www.waterburyhospital.com/library/consumer.shtml**
- **Delaware:** Consumer Health Library (Christiana Care Health System, Eugene du Pont Preventive Medicine & Rehabilitation Institute), **http://www.christianacare.org/health_guide/health_guide_pmri_health_info.cfm**
- **Delaware:** Lewis B. Flinn Library (Delaware Academy of Medicine), **http://www.delamed.org/chls.html**
- **Georgia:** Family Resource Library (Medical College of Georgia), **http://cmc.mcg.edu/kids_families/fam_resources/fam_res_lib/frl.htm**
- **Georgia:** Health Resource Center (Medical Center of Central Georgia), **http://www.mccg.org/hrc/hrchome.asp**
- **Hawaii:** Hawaii Medical Library: Consumer Health Information Service (Hawaii Medical Library), **http://hml.org/CHIS/**

- **Idaho:** DeArmond Consumer Health Library (Kootenai Medical Center), **http://www.nicon.org/DeArmond/index.htm**
- **Illinois:** Health Learning Center of Northwestern Memorial Hospital (Northwestern Memorial Hospital, Health Learning Center), **http://www.nmh.org/health_info/hlc.html**
- **Illinois:** Medical Library (OSF Saint Francis Medical Center), **http://www.osfsaintfrancis.org/general/library/**
- **Kentucky:** Medical Library - Services for Patients, Families, Students & the Public (Central Baptist Hospital), **http://www.centralbap.com/education/community/library.htm**
- **Kentucky:** University of Kentucky - Health Information Library (University of Kentucky, Chandler Medical Center, Health Information Library), **http://www.mc.uky.edu/PatientEd/**
- **Louisiana:** Alton Ochsner Medical Foundation Library (Alton Ochsner Medical Foundation), **http://www.ochsner.org/library/**
- **Louisiana:** Louisiana State University Health Sciences Center Medical Library-Shreveport, **http://lib-sh.lsuhsc.edu/**
- **Maine:** Franklin Memorial Hospital Medical Library (Franklin Memorial Hospital), **http://www.fchn.org/fmh/lib.htm**
- **Maine:** Gerrish-True Health Sciences Library (Central Maine Medical Center), **http://www.cmmc.org/library/library.html**
- **Maine:** Hadley Parrot Health Science Library (Eastern Maine Healthcare), **http://www.emh.org/hll/hpl/guide.htm**
- **Maine:** Maine Medical Center Library (Maine Medical Center), **http://www.mmc.org/library/**
- **Maine:** Parkview Hospital, **http://www.parkviewhospital.org/communit.htm#Library**
- **Maine:** Southern Maine Medical Center Health Sciences Library (Southern Maine Medical Center), **http://www.smmc.org/services/service.php3?choice=10**
- **Maine:** Stephens Memorial Hospital Health Information Library (Western Maine Health), **http://www.wmhcc.com/hil_frame.html**
- **Manitoba, Canada:** Consumer & Patient Health Information Service (University of Manitoba Libraries), **http://www.umanitoba.ca/libraries/units/health/reference/chis.html**
- **Manitoba, Canada:** J.W. Crane Memorial Library (Deer Lodge Centre), **http://www.deerlodge.mb.ca/library/libraryservices.shtml**

- **Maryland:** Health Information Center at the Wheaton Regional Library (Montgomery County, Md., Dept. of Public Libraries, Wheaton Regional Library), **http://www.mont.lib.md.us/healthinfo/hic.asp**
- **Massachusetts:** Baystate Medical Center Library (Baystate Health System), **http://www.baystatehealth.com/1024/**
- **Massachusetts:** Boston University Medical Center Alumni Medical Library (Boston University Medical Center), **http://med-libwww.bu.edu/library/lib.html**
- **Massachusetts:** Lowell General Hospital Health Sciences Library (Lowell General Hospital), **http://www.lowellgeneral.org/library/HomePageLinks/WWW.htm**
- **Massachusetts:** Paul E. Woodard Health Sciences Library (New England Baptist Hospital), **http://www.nebh.org/health_lib.asp**
- **Massachusetts:** St. Luke's Hospital Health Sciences Library (St. Luke's Hospital), **http://www.southcoast.org/library/**
- **Massachusetts:** Treadwell Library Consumer Health Reference Center (Massachusetts General Hospital), **http://www.mgh.harvard.edu/library/chrcindex.html**
- **Massachusetts:** UMass HealthNet (University of Massachusetts Medical School), **http://healthnet.umassmed.edu/**
- **Michigan:** Botsford General Hospital Library - Consumer Health (Botsford General Hospital, Library & Internet Services), **http://www.botsfordlibrary.org/consumer.htm**
- **Michigan:** Helen DeRoy Medical Library (Providence Hospital and Medical Centers), **http://www.providence-hospital.org/library/**
- **Michigan:** Marquette General Hospital - Consumer Health Library (Marquette General Hospital, Health Information Center), **http://www.mgh.org/center.html**
- **Michigan:** Patient Education Resouce Center - University of Michigan Cancer Center (University of Michigan Comprehensive Cancer Center), **http://www.cancer.med.umich.edu/learn/leares.htm**
- **Michigan:** Sladen Library & Center for Health Information Resources - Consumer Health Information, **http://www.sladen.hfhs.org/library/consumer/index.html**
- **Montana:** Center for Health Information (St. Patrick Hospital and Health Sciences Center), **http://www.saintpatrick.org/chi/librarydetail.php3?ID=41**

- **National:** Consumer Health Library Directory (Medical Library Association, Consumer and Patient Health Information Section), **http://caphis.mlanet.org/directory/index.html**
- **National:** National Network of Libraries of Medicine (National Library of Medicine) - provides library services for health professionals in the United States who do not have access to a medical library, **http://nnlm.gov/**
- **National:** NN/LM List of Libraries Serving the Public (National Network of Libraries of Medicine), **http://nnlm.gov/members/**
- **Nevada:** Health Science Library, West Charleston Library (Las Vegas Clark County Library District), **http://www.lvccld.org/special_collections/medical/index.htm**
- **New Hampshire:** Dartmouth Biomedical Libraries (Dartmouth College Library), **http://www.dartmouth.edu/~biomed/resources.htmld/conshealth.htmld/**
- **New Jersey:** Consumer Health Library (Rahway Hospital), **http://www.rahwayhospital.com/library.htm**
- **New Jersey:** Dr. Walter Phillips Health Sciences Library (Englewood Hospital and Medical Center), **http://www.englewoodhospital.com/links/index.htm**
- **New Jersey:** Meland Foundation (Englewood Hospital and Medical Center), **http://www.geocities.com/ResearchTriangle/9360/**
- **New York:** Choices in Health Information (New York Public Library) - NLM Consumer Pilot Project participant, **http://www.nypl.org/branch/health/links.html**
- **New York:** Health Information Center (Upstate Medical University, State University of New York), **http://www.upstate.edu/library/hic/**
- **New York:** Health Sciences Library (Long Island Jewish Medical Center), **http://www.lij.edu/library/library.html**
- **New York:** ViaHealth Medical Library (Rochester General Hospital), **http://www.nyam.org/library/**
- **Ohio:** Consumer Health Library (Akron General Medical Center, Medical & Consumer Health Library), **http://www.akrongeneral.org/hwlibrary.htm**
- **Oklahoma:** Saint Francis Health System Patient/Family Resource Center (Saint Francis Health System), **http://www.sfh-tulsa.com/patientfamilycenter/default.asp**

- **Oregon:** Planetree Health Resource Center (Mid-Columbia Medical Center), **http://www.mcmc.net/phrc/**
- **Pennsylvania:** Community Health Information Library (Milton S. Hershey Medical Center), **http://www.hmc.psu.edu/commhealth/**
- **Pennsylvania:** Community Health Resource Library (Geisinger Medical Center), **http://www.geisinger.edu/education/commlib.shtml**
- **Pennsylvania:** HealthInfo Library (Moses Taylor Hospital), **http://www.mth.org/healthwellness.html**
- **Pennsylvania:** Hopwood Library (University of Pittsburgh, Health Sciences Library System), **http://www.hsls.pitt.edu/chi/hhrcinfo.html**
- **Pennsylvania:** Koop Community Health Information Center (College of Physicians of Philadelphia), **http://www.collphyphil.org/kooppg1.shtml**
- **Pennsylvania:** Learning Resources Center - Medical Library (Susquehanna Health System), **http://www.shscares.org/services/lrc/index.asp**
- **Pennsylvania:** Medical Library (UPMC Health System), **http://www.upmc.edu/passavant/library.htm**
- **Quebec, Canada:** Medical Library (Montreal General Hospital), **http://ww2.mcgill.ca/mghlib/**
- **South Dakota:** Rapid City Regional Hospital - Health Information Center (Rapid City Regional Hospital, Health Information Center), **http://www.rcrh.org/education/LibraryResourcesConsumers.htm**
- **Texas:** Houston HealthWays (Houston Academy of Medicine-Texas Medical Center Library), **http://hhw.library.tmc.edu/**
- **Texas:** Matustik Family Resource Center (Cook Children's Health Care System), **http://www.cookchildrens.com/Matustik_Library.html**
- **Washington:** Community Health Library (Kittitas Valley Community Hospital), **http://www.kvch.com/**
- **Washington:** Southwest Washington Medical Center Library (Southwest Washington Medical Center), **http://www.swmedctr.com/Home/**

APPENDIX E. YOUR RIGHTS AND INSURANCE

Overview

Any patient with MDMA dependence faces a series of issues related more to the healthcare industry than to the medical condition itself. This appendix covers two important topics in this regard: your rights and responsibilities as a patient, and how to get the most out of your medical insurance plan.

Your Rights as a Patient

The President's Advisory Commission on Consumer Protection and Quality in the Healthcare Industry has created the following summary of your rights as a patient.[51]

Information Disclosure

Consumers have the right to receive accurate, easily understood information. Some consumers require assistance in making informed decisions about health plans, health professionals, and healthcare facilities. Such information includes:

- ***Health plans.*** Covered benefits, cost-sharing, and procedures for resolving complaints, licensure, certification, and accreditation status, comparable measures of quality and consumer satisfaction, provider network composition, the procedures that govern access to specialists and emergency services, and care management information.

[51]Adapted from Consumer Bill of Rights and Responsibilities: **http://www.hcqualitycommission.gov/press/cbor.html#head1**.

- ***Health professionals.*** Education, board certification, and recertification, years of practice, experience performing certain procedures, and comparable measures of quality and consumer satisfaction.
- ***Healthcare facilities.*** Experience in performing certain procedures and services, accreditation status, comparable measures of quality, worker, and consumer satisfaction, and procedures for resolving complaints.
- ***Consumer assistance programs.*** Programs must be carefully structured to promote consumer confidence and to work cooperatively with health plans, providers, payers, and regulators. Desirable characteristics of such programs are sponsorship that ensures accountability to the interests of consumers and stable, adequate funding.

Choice of Providers and Plans

Consumers have the right to a choice of healthcare providers that is sufficient to ensure access to appropriate high-quality healthcare. To ensure such choice, the Commission recommends the following:

- ***Provider network adequacy.*** All health plan networks should provide access to sufficient numbers and types of providers to assure that all covered services will be accessible without unreasonable delay -- including access to emergency services 24 hours a day and 7 days a week. If a health plan has an insufficient number or type of providers to provide a covered benefit with the appropriate degree of specialization, the plan should ensure that the consumer obtains the benefit outside the network at no greater cost than if the benefit were obtained from participating providers.
- ***Women's health services.*** Women should be able to choose a qualified provider offered by a plan -- such as gynecologists, certified nurse midwives, and other qualified healthcare providers -- for the provision of covered care necessary to provide routine and preventative women's healthcare services.
- ***Access to specialists.*** Consumers with complex or serious medical conditions who require frequent specialty care should have direct access to a qualified specialist of their choice within a plan's network of providers. Authorizations, when required, should be for an adequate number of direct access visits under an approved treatment plan.
- ***Transitional care.*** Consumers who are undergoing a course of treatment for a chronic or disabling condition (or who are in the second or third trimester of a pregnancy) at the time they involuntarily change health

plans or at a time when a provider is terminated by a plan for other than cause should be able to continue seeing their current specialty providers for up to 90 days (or through completion of postpartum care) to allow for transition of care.

- ***Choice of health plans.*** Public and private group purchasers should, wherever feasible, offer consumers a choice of high-quality health insurance plans.

Access to Emergency Services

Consumers have the right to access emergency healthcare services when and where the need arises. Health plans should provide payment when a consumer presents to an emergency department with acute symptoms of sufficient severity--including severe pain--such that a "prudent layperson" could reasonably expect the absence of medical attention to result in placing that consumer's health in serious jeopardy, serious impairment to bodily functions, or serious dysfunction of any bodily organ or part.

Participation in Treatment Decisions

Consumers have the right and responsibility to fully participate in all decisions related to their healthcare. Consumers who are unable to fully participate in treatment decisions have the right to be represented by parents, guardians, family members, or other conservators. Physicians and other health professionals should:

- Provide patients with sufficient information and opportunity to decide among treatment options consistent with the informed consent process.
- Discuss all treatment options with a patient in a culturally competent manner, including the option of no treatment at all.
- Ensure that persons with disabilities have effective communications with members of the health system in making such decisions.
- Discuss all current treatments a consumer may be undergoing.
- Discuss all risks, benefits, and consequences to treatment or nontreatment.
- Give patients the opportunity to refuse treatment and to express preferences about future treatment decisions.

- Discuss the use of advance directives -- both living wills and durable powers of attorney for healthcare -- with patients and their designated family members.
- Abide by the decisions made by their patients and/or their designated representatives consistent with the informed consent process.

Health plans, health providers, and healthcare facilities should:

- Disclose to consumers factors -- such as methods of compensation, ownership of or interest in healthcare facilities, or matters of conscience -- that could influence advice or treatment decisions.
- Assure that provider contracts do not contain any so-called "gag clauses" or other contractual mechanisms that restrict healthcare providers' ability to communicate with and advise patients about medically necessary treatment options.
- Be prohibited from penalizing or seeking retribution against healthcare professionals or other health workers for advocating on behalf of their patients.

Respect and Nondiscrimination

Consumers have the right to considerate, respectful care from all members of the healthcare industry at all times and under all circumstances. An environment of mutual respect is essential to maintain a quality healthcare system. To assure that right, the Commission recommends the following:

- Consumers must not be discriminated against in the delivery of healthcare services consistent with the benefits covered in their policy, or as required by law, based on race, ethnicity, national origin, religion, sex, age, mental or physical disability, sexual orientation, genetic information, or source of payment.
- Consumers eligible for coverage under the terms and conditions of a health plan or program, or as required by law, must not be discriminated against in marketing and enrollment practices based on race, ethnicity, national origin, religion, sex, age, mental or physical disability, sexual orientation, genetic information, or source of payment.

Confidentiality of Health Information

Consumers have the right to communicate with healthcare providers in confidence and to have the confidentiality of their individually identifiable

healthcare information protected. Consumers also have the right to review and copy their own medical records and request amendments to their records.

Complaints and Appeals

Consumers have the right to a fair and efficient process for resolving differences with their health plans, healthcare providers, and the institutions that serve them, including a rigorous system of internal review and an independent system of external review. A free copy of the Patient's Bill of Rights is available from the American Hospital Association.[52]

Patient Responsibilities

Treatment is a two-way street between you and your healthcare providers. To underscore the importance of finance in modern healthcare as well as your responsibility for the financial aspects of your care, the President's Advisory Commission on Consumer Protection and Quality in the Healthcare Industry has proposed that patients understand the following "Consumer Responsibilities."[53] In a healthcare system that protects consumers' rights, it is reasonable to expect and encourage consumers to assume certain responsibilities. Greater individual involvement by the consumer in his or her care increases the likelihood of achieving the best outcome and helps support a quality-oriented, cost-conscious environment. Such responsibilities include:

- Take responsibility for maximizing healthy habits such as exercising, not smoking, and eating a healthy diet.
- Work collaboratively with healthcare providers in developing and carrying out agreed-upon treatment plans.
- Disclose relevant information and clearly communicate wants and needs.
- Use your health insurance plan's internal complaint and appeal processes to address your concerns.
- Avoid knowingly spreading disease.

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[52] To order your free copy of the Patient's Bill of Rights, telephone 312-422-3000 or visit the American Hospital Association's Web site: **http://www.aha.org**. Click on "Resource Center," go to "Search" at bottom of page, and then type in "Patient's Bill of Rights." The Patient's Bill of Rights is also available from Fax on Demand, at 312-422-2020, document number 471124.

[53] Adapted from **http://www.hcqualitycommission.gov/press/cbor.html#head1**.

- Recognize the reality of risks, the limits of the medical science, and the human fallibility of the healthcare professional.
- Be aware of a healthcare provider's obligation to be reasonably efficient and equitable in providing care to other patients and the community.
- Become knowledgeable about your health plan's coverage and options (when available) including all covered benefits, limitations, and exclusions, rules regarding use of network providers, coverage and referral rules, appropriate processes to secure additional information, and the process to appeal coverage decisions.
- Show respect for other patients and health workers.
- Make a good-faith effort to meet financial obligations.
- Abide by administrative and operational procedures of health plans, healthcare providers, and Government health benefit programs.

Choosing an Insurance Plan

There are a number of official government agencies that help consumers understand their healthcare insurance choices.[54] The U.S. Department of Labor, in particular, recommends ten ways to make your health benefits choices work best for you.[55]

1. Your options are important. There are many different types of health benefit plans. Find out which one your employer offers, then check out the plan, or plans, offered. Your employer's human resource office, the health plan administrator, or your union can provide information to help you match your needs and preferences with the available plans. The more information you have, the better your healthcare decisions will be.

2. Reviewing the benefits available. Do the plans offered cover preventive care, well-baby care, vision or dental care? Are there deductibles? Answers to these questions can help determine the out-of-pocket expenses you may face. Matching your needs and those of your family members will result in the best possible benefits. Cheapest may not always be best. Your goal is high quality health benefits.

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[54] More information about quality across programs is provided at the following AHRQ Web site:
http://www.ahrq.gov/consumer/qntascii/qnthplan.htm.

[55] Adapted from the Department of Labor:
http://www.dol.gov/dol/pwba/public/pubs/health/top10-text.html.

3. Look for quality. The quality of healthcare services varies, but quality can be measured. You should consider the quality of healthcare in deciding among the healthcare plans or options available to you. Not all health plans, doctors, hospitals and other providers give the highest quality care. Fortunately, there is quality information you can use right now to help you compare your healthcare choices. Find out how you can measure quality. Consult the U.S. Department of Health and Human Services publication "Your Guide to Choosing Quality Health Care" on the Internet at **www.ahcpr.gov/consumer**.

4. Your plan's summary plan description (SPD) provides a wealth of information. Your health plan administrator can provide you with a copy of your plan's SPD. It outlines your benefits and your legal rights under the Employee Retirement Income Security Act (ERISA), the federal law that protects your health benefits. It should contain information about the coverage of dependents, what services will require a co-pay, and the circumstances under which your employer can change or terminate a health benefits plan. Save the SPD and all other health plan brochures and documents, along with memos or correspondence from your employer relating to health benefits.

5. Assess your benefit coverage as your family status changes. Marriage, divorce, childbirth or adoption, and the death of a spouse are all life events that may signal a need to change your health benefits. You, your spouse and dependent children may be eligible for a special enrollment period under provisions of the Health Insurance Portability and Accountability Act (HIPAA). Even without life-changing events, the information provided by your employer should tell you how you can change benefits or switch plans, if more than one plan is offered. If your spouse's employer also offers a health benefits package, consider coordinating both plans for maximum coverage.

6. Changing jobs and other life events can affect your health benefits. Under the Consolidated Omnibus Budget Reconciliation Act (COBRA), you, your covered spouse, and your dependent children may be eligible to purchase extended health coverage under your employer's plan if you lose your job, change employers, get divorced, or upon occurrence of certain other events. Coverage can range from 18 to 36 months depending on your situation. COBRA applies to most employers with 20 or more workers and requires your plan to notify you of your rights. Most plans require eligible individuals to make their COBRA election within 60 days of the plan's notice. Be sure to follow up with your plan sponsor if you don't receive notice, and make sure you respond within the allotted time.

7. HIPAA can also help if you are changing jobs, particularly if you have a medical condition. HIPAA generally limits pre-existing condition exclusions to a maximum of 12 months (18 months for late enrollees). HIPAA also requires this maximum period to be reduced by the length of time you had prior "creditable coverage." You should receive a certificate documenting your prior creditable coverage from your old plan when coverage ends.

8. Plan for retirement. Before you retire, find out what health benefits, if any, extend to you and your spouse during your retirement years. Consult with your employer's human resources office, your union, the plan administrator, and check your SPD. Make sure there is no conflicting information among these sources about the benefits you will receive or the circumstances under which they can change or be eliminated. With this information in hand, you can make other important choices, like finding out if you are eligible for Medicare and Medigap insurance coverage.

9. Know how to file an appeal if your health benefits claim is denied. Understand how your plan handles grievances and where to make appeals of the plan's decisions. Keep records and copies of correspondence. Check your health benefits package and your SPD to determine who is responsible for handling problems with benefit claims. Contact PWBA for customer service assistance if you are unable to obtain a response to your complaint.

10. You can take steps to improve the quality of the healthcare and the health benefits you receive. Look for and use things like Quality Reports and Accreditation Reports whenever you can. Quality reports may contain consumer ratings -- how satisfied consumers are with the doctors in their plan, for instance-- and clinical performance measures -- how well a healthcare organization prevents and treats illness. Accreditation reports provide information on how accredited organizations meet national standards, and often include clinical performance measures. Look for these quality measures whenever possible. Consult "Your Guide to Choosing Quality Health Care" on the Internet at **www.ahcpr.gov/consumer**.

Medicare and Medicaid

Illness strikes both rich and poor families. For low-income families, Medicaid is available to defer the costs of treatment. The Health Care Financing Administration (HCFA) administers Medicare, the nation's largest health insurance program, which covers 39 million Americans. In the following pages, you will learn the basics about Medicare insurance as well as useful

contact information on how to find more in-depth information about Medicaid.[56]

Who is Eligible for Medicare?

Generally, you are eligible for Medicare if you or your spouse worked for at least 10 years in Medicare-covered employment and you are 65 years old and a citizen or permanent resident of the United States. You might also qualify for coverage if you are under age 65 but have a disability or End-Stage Renal disease (permanent kidney failure requiring dialysis or transplant). Here are some simple guidelines:

You can get Part A at age 65 without having to pay premiums if:

- You are already receiving retirement benefits from Social Security or the Railroad Retirement Board.
- You are eligible to receive Social Security or Railroad benefits but have not yet filed for them.
- You or your spouse had Medicare-covered government employment.

If you are under 65, you can get Part A without having to pay premiums if:

- You have received Social Security or Railroad Retirement Board disability benefit for 24 months.
- You are a kidney dialysis or kidney transplant patient.

Medicare has two parts:

- Part A (Hospital Insurance). Most people do not have to pay for Part A.
- Part B (Medical Insurance). Most people pay monthly for Part B.

Part A (Hospital Insurance)

Helps Pay For: Inpatient hospital care, care in critical access hospitals (small facilities that give limited outpatient and inpatient services to people in rural areas) and skilled nursing facilities, hospice care, and some home healthcare.

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[56] This section has been adapted from the Official U.S. Site for Medicare Information: **http://www.medicare.gov/Basics/Overview.asp**.

Cost: Most people get Part A automatically when they turn age 65. You do not have to pay a monthly payment called a premium for Part A because you or a spouse paid Medicare taxes while you were working.

If you (or your spouse) did not pay Medicare taxes while you were working and you are age 65 or older, you still may be able to buy Part A. If you are not sure you have Part A, look on your red, white, and blue Medicare card. It will show "Hospital Part A" on the lower left corner of the card. You can also call the Social Security Administration toll free at 1-800-772-1213 or call your local Social Security office for more information about buying Part A. If you get benefits from the Railroad Retirement Board, call your local RRB office or 1-800-808-0772. For more information, call your Fiscal Intermediary about Part A bills and services. The phone number for the Fiscal Intermediary office in your area can be obtained from the following Web site: **http://www.medicare.gov/Contacts/home.asp**.

Part B (Medical Insurance)

Helps Pay For: Doctors, services, outpatient hospital care, and some other medical services that Part A does not cover, such as the services of physical and occupational therapists, and some home healthcare. Part B helps pay for covered services and supplies when they are medically necessary.

Cost: As of 2001, you pay the Medicare Part B premium of $50.00 per month. In some cases this amount may be higher if you did not choose Part B when you first became eligible at age 65. The cost of Part B may go up 10% for each 12-month period that you were eligible for Part B but declined coverage, except in special cases. You will have to pay the extra 10% cost for the rest of your life.

Enrolling in Part B is your choice. You can sign up for Part B anytime during a 7-month period that begins 3 months before you turn 65. Visit your local Social Security office, or call the Social Security Administration at 1-800-772-1213 to sign up. If you choose to enroll in Part B, the premium is usually taken out of your monthly Social Security, Railroad Retirement, or Civil Service Retirement payment. If you do not receive any of the above payments, Medicare sends you a bill for your part B premium every 3 months. You should receive your Medicare premium bill in the mail by the 10th of the month. If you do not, call the Social Security Administration at 1-800-772-1213, or your local Social Security office. If you get benefits from the Railroad Retirement Board, call your local RRB office or 1-800-808-0772. For more information, call your Medicare carrier about bills and services. The

phone number for the Medicare carrier in your area can be found at the following Web site: **http://www.medicare.gov/Contacts/home.asp**. You may have choices in how you get your healthcare including the Original Medicare Plan, Medicare Managed Care Plans (like HMOs), and Medicare Private Fee-for-Service Plans.

Medicaid

Medicaid is a joint federal and state program that helps pay medical costs for some people with low incomes and limited resources. Medicaid programs vary from state to state. People on Medicaid may also get coverage for nursing home care and outpatient prescription drugs which are not covered by Medicare. You can find more information about Medicaid on the HCFA.gov Web site at **http://www.hcfa.gov/medicaid/medicaid.htm**.

States also have programs that pay some or all of Medicare's premiums and may also pay Medicare deductibles and coinsurance for certain people who have Medicare and a low income. To qualify, you must have:

- Part A (Hospital Insurance),
- Assets, such as bank accounts, stocks, and bonds that are not more than $4,000 for a single person, or $6,000 for a couple, and
- A monthly income that is below certain limits.

For more information on these programs, look at the Medicare Savings Programs brochure, **http://www.medicare.gov/Library/PDFNavigation/PDFInterim.asp?Language=English&Type=Pub&PubID=10126**. There are also Prescription Drug Assistance Programs available. Find information on these programs which offer discounts or free medications to individuals in need at **http://www.medicare.gov/Prescription/Home.asp**.

NORD's Medication Assistance Programs

Finally, the National Organization for Rare Disorders, Inc. (NORD) administers medication programs sponsored by humanitarian-minded pharmaceutical and biotechnology companies to help uninsured or under-insured individuals secure life-saving or life-sustaining drugs.[57] NORD

[57] Adapted from NORD: **http://www.rarediseases.org/cgi-bin/nord/progserv#patient?id=rPIzL9oD&mv_pc=30**.

programs ensure that certain vital drugs are available "to those individuals whose income is too high to qualify for Medicaid but too low to pay for their prescribed medications." The program has standards for fairness, equity, and unbiased eligibility. It currently covers some 14 programs for nine pharmaceutical companies. NORD also offers early access programs for investigational new drugs (IND) under the approved "Treatment INDs" programs of the Food and Drug Administration (FDA). In these programs, a limited number of individuals can receive investigational drugs that have yet to be approved by the FDA. These programs are generally designed for rare diseases or disorders. For more information, visit **www.rarediseases.org**.

Additional Resources

In addition to the references already listed in this chapter, you may need more information on health insurance, hospitals, or the healthcare system in general. The NIH has set up an excellent guidance Web site that addresses these and other issues. Topics include:[58]

- Health Insurance:
  http://www.nlm.nih.gov/medlineplus/healthinsurance.html
- Health Statistics:
  http://www.nlm.nih.gov/medlineplus/healthstatistics.html
- HMO and Managed Care:
  http://www.nlm.nih.gov/medlineplus/managedcare.html
- Hospice Care: **http://www.nlm.nih.gov/medlineplus/hospicecare.html**
- Medicaid: **http://www.nlm.nih.gov/medlineplus/medicaid.html**
- Medicare: **http://www.nlm.nih.gov/medlineplus/medicare.html**
- Nursing Homes and Long-term Care:
  http://www.nlm.nih.gov/medlineplus/nursinghomes.html
- Patient's Rights, Confidentiality, Informed Consent, Ombudsman Programs, Privacy and Patient Issues:
  http://www.nlm.nih.gov/medlineplus/patientissues.html

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[58] You can access this information at:
http://www.nlm.nih.gov/medlineplus/healthsystem.html.

ONLINE GLOSSARIES

The Internet provides access to a number of free-to-use medical dictionaries and glossaries. The National Library of Medicine has compiled the following list of online dictionaries:

- ADAM Medical Encyclopedia (A.D.A.M., Inc.), comprehensive medical reference: **http://www.nlm.nih.gov/medlineplus/encyclopedia.html**
- MedicineNet.com Medical Dictionary (MedicineNet, Inc.): **http://www.medterms.com/Script/Main/hp.asp**
- Merriam-Webster Medical Dictionary (Inteli-Health, Inc.): **http://www.intelihealth.com/IH/**
- Multilingual Glossary of Technical and Popular Medical Terms in Eight European Languages (European Commission) - Danish, Dutch, English, French, German, Italian, Portuguese, and Spanish: **http://allserv.rug.ac.be/~rvdstich/eugloss/welcome.html**
- On-line Medical Dictionary (CancerWEB): **http://www.graylab.ac.uk/omd/**
- Technology Glossary (National Library of Medicine) - Health Care Technology: **http://www.nlm.nih.gov/nichsr/ta101/ta10108.htm**
- Terms and Definitions (Office of Rare Diseases): **http://rarediseases.info.nih.gov/ord/glossary_a-e.html**

Beyond these, MEDLINEplus contains a very user-friendly encyclopedia covering every aspect of medicine (licensed from A.D.A.M., Inc.). The ADAM Medical Encyclopedia Web site address is **http://www.nlm.nih.gov/medlineplus/encyclopedia.html**. ADAM is also available on commercial Web sites such as drkoop.com (**http://www.drkoop.com/**) and Web MD (**http://my.webmd.com/adam/asset/adam_disease_articles/a_to_z/a)**. Topics of interest can be researched by using keywords before continuing elsewhere, as these basic definitions and concepts will be useful in more advanced areas of research. You may choose to print various pages specifically relating to MDMA dependence and keep them on file.

Online Dictionary Directories

The following are additional online directories compiled by the National Library of Medicine, including a number of specialized medical dictionaries and glossaries:

- Medical Dictionaries: Medical & Biological (World Health Organization): **http://www.who.int/hlt/virtuallibrary/English/diction.htm#Medical**
- MEL-Michigan Electronic Library List of Online Health and Medical Dictionaries (Michigan Electronic Library): **http://mel.lib.mi.us/health/health-dictionaries.html**
- Patient Education: Glossaries (DMOZ Open Directory Project): **http://dmoz.org/Health/Education/Patient_Education/Glossaries/**
- Web of Online Dictionaries (Bucknell University): **http://www.yourdictionary.com/diction5.html#medicine**

MDMA DEPENDENCE GLOSSARY

The following is a complete glossary of terms used in this sourcebook. The definitions are derived from official public sources including the National Institutes of Health [NIH] and the European Union [EU]. After this glossary, we list a number of additional hardbound and electronic glossaries and dictionaries that you may wish to consult.

Acne: An inflammatory disease of the pilosebaceous unit, the specific type usually being indicated by a modifying term; frequently used alone to designate common acne, or acne vulgaris. [EU]

Agonist: A chemical compound that mimics the action of a natural neurotransmitter. [NIH]

Amphetamines: Analogs or derivatives of amphetamine. Many are sympathomimetics and central nervous system stimulators causing excitation, vasopression, bronchodilation, and to varying degrees, anorexia, analepsis, nasal decongestion, and some smooth muscle relaxation. [NIH]

Anal: Pertaining to the anus. [EU]

Antidepressants: A group of drugs used in treating depressive disorders. [NIH]

Anxiety: The unpleasant emotional state consisting of psychophysiological responses to anticipation of unreal or imagined danger, ostensibly resulting from unrecognized intrapsychic conflict. Physiological concomitants include increased heart rate, altered respiration rate, sweating, trembling, weakness, and fatigue; psychological concomitants include feelings of impending danger, powerlessness, apprehension, and tension. [EU]

Assay: Determination of the amount of a particular constituent of a mixture, or of the biological or pharmacological potency of a drug. [EU]

Bacteria: Unicellular prokaryotic microorganisms which generally possess rigid cell walls, multiply by cell division, and exhibit three principal forms: round or coccal, rodlike or bacillary, and spiral or spirochetal. [NIH]

Barbiturate: A type of central nervous system (CNS) depressant often prescribed to promote sleep. [NIH]

Benign: Not malignant; not recurrent; favourable for recovery. [EU]

Benzodiazepine: A type of CNS depressant prescribed to relieve anxiety; among the most widely prescribed medications, including Valium and Librium. [NIH]

Bupropion: A unicyclic, aminoketone antidepressant. The mechanism of its therapeutic actions is not well understood, but it does appear to block

dopamine uptake. The hydrochloride is available as an aid to smoking cessation treatment. [NIH]

Capsules: Hard or soft soluble containers used for the oral administration of medicine. [NIH]

Carbohydrate: An aldehyde or ketone derivative of a polyhydric alcohol, particularly of the pentahydric and hexahydric alcohols. They are so named because the hydrogen and oxygen are usually in the proportion to form water, (CH2O)n. The most important carbohydrates are the starches, sugars, celluloses, and gums. They are classified into mono-, di-, tri-, poly- and heterosaccharides. [EU]

Cardiovascular: Pertaining to the heart and blood vessels. [EU]

Cerebral: Of or pertaining of the cerebrum or the brain. [EU]

Chlormethiazole: A sedative and anticonvulsant often used in the treatment of alcohol withdrawal. Chlormethiazole has also been proposed as a neuroprotective agent. The mechanism of its therapeutic activity is not entirely clear, but it does potentiate GABA receptors response and it may also affect glycine receptors. [NIH]

Cholesterol: The principal sterol of all higher animals, distributed in body tissues, especially the brain and spinal cord, and in animal fats and oils. [NIH]

Chronic: Persisting over a long period of time. [EU]

Cocaine: An alkaloid ester extracted from the leaves of plants including coca. It is a local anesthetic and vasoconstrictor and is clinically used for that purpose, particularly in the eye, ear, nose, and throat. It also has powerful central nervous system effects similar to the amphetamines and is a drug of abuse. Cocaine, like amphetamines, acts by multiple mechanisms on brain catecholaminergic neurons; the mechanism of its reinforcing effects is thought to involve inhibition of dopamine uptake. [NIH]

Confusion: Disturbed orientation in regard to time, place, or person, sometimes accompanied by disordered consciousness. [EU]

Crack: Short term for a smokable form of cocaine. [NIH]

Craving: A powerful, often uncontrollable desire for drugs. [NIH]

Cues: Signals for an action; that specific portion of a perceptual field or pattern of stimuli to which a subject has learned to respond. [NIH]

Degenerative: Undergoing degeneration : tending to degenerate; having the character of or involving degeneration; causing or tending to cause degeneration. [EU]

Dehydration: The condition that results from excessive loss of body water. Called also anhydration, deaquation and hypohydration. [EU]

Detoxification: A process of allowing the body to rid itself of a drug while

managing the symptoms of withdrawal; often the first step in a drug treatment program. [NIH]

Diamide: A sulfhydryl reagent which oxidizes sulfhydryl groups to the disulfide form. It is a radiation-sensitizing agent of anoxic bacterial and mammalian cells. [NIH]

Diarrhea: Passage of excessively liquid or excessively frequent stools. [NIH]

Dopamine: A neurotransmitter present in regions of the brain that regulate movement, emotion, motivation, and feeling of pleasure. [NIH]

Dorsal: 1. pertaining to the back or to any dorsum. 2. denoting a position more toward the back surface than some other object of reference; same as posterior in human anatomy; superior in the anatomy of quadrupeds. [EU]

Epidemic: Occurring suddenly in numbers clearly in excess of normal expectancy; said especially of infectious diseases but applied also to any disease, injury, or other health-related event occurring in such outbreaks. [EU]

Euphoria: An exaggerated feeling of physical and mental well-being, especially when not justified by external reality. Euphoria may be induced by drugs such as opioids, amphetamines, and alcohol and is also a feature of mania. [EU]

Fenfluramine: A centrally active drug that apparently both blocks serotonin uptake and provokes transport-mediated serotonin release. [NIH]

Glucose: D-glucose, a monosaccharide (hexose), C6H12O6, also known as dextrose (q.v.), found in certain foodstuffs, especially fruits, and in the normal blood of all animals. It is the end product of carbohydrate metabolism and is the chief source of energy for living organisms, its utilization being controlled by insulin. Excess glucose is converted to glycogen and stored in the liver and muscles for use as needed and, beyond that, is converted to fat and stored as adipose tissue. Glucose appears in the urine in diabetes mellitus. [EU]

Hallucinogen: A drug that produces hallucinations - distortion in perception of sights and sounds - and disturbances in emotion, judgment, and memory. [NIH]

Hepatitis: Inflammation of the liver. [EU]

Hormone: A chemical substance formed in glands in the body and carried in the blood to organs and tissues, where it influences function, structure, and behavior. [NIH]

Hypertension: Persistently high arterial blood pressure. Various criteria for its threshold have been suggested, ranging from 140 mm. Hg systolic and 90 mm. Hg diastolic to as high as 200 mm. Hg systolic and 110 mm. Hg diastolic. Hypertension may have no known cause (essential or idiopathic h.) or be associated with other primary diseases (secondary h.). [EU]

Hyperthermia: Abnormally high body temperature, especially that induced for therapeutic purposes. [EU]

Immunity: The condition of being immune; the protection against infectious disease conferred either by the immune response generated by immunization or previous infection or by other nonimmunologic factors (innate i.). [EU]

Incarceration: Abnormal retention or confinement of a body part; specifically : a constriction of the neck of a hernial sac so that the hernial contents become irreducible. [EU]

Innervation: 1. the distribution or supply of nerves to a part. 2. the supply of nervous energy or of nerve stimulus sent to a part. [EU]

Institutionalization: The caring for individuals in institutions and their adaptation to routines characteristic of the institutional environment, and/or their loss of adaptation to life outside the institution. [NIH]

Intestinal: Pertaining to the intestine. [EU]

Intoxication: Poisoning, the state of being poisoned. [EU]

Intravenous: Within a vein or veins. [EU]

Iodine: A nonmetallic element of the halogen group that is represented by the atomic symbol I, atomic number 53, and atomic weight of 126.90. It is a nutritionally essential element, especially important in thyroid hormone synthesis. In solution, it has anti-infective properties and is used topically. [NIH]

Ketamine: Dissociative anesthetic abused for its mind-altering effects and sometimes used to facilitate sexual assault. [NIH]

LAAM: An approved medication for the treatment of opioid addiction, taken 3 to 4 times a week. [NIH]

Limbic: Pertaining to a limbus, or margin; forming a border around. [EU]

Localization: 1. the determination of the site or place of any process or lesion. 2. restriction to a circumscribed or limited area. 3. prelocalization. [EU]

Locomotor: Of or pertaining to locomotion; pertaining to or affecting the locomotive apparatus of the body. [EU]

Malignant: Tending to become progressively worse and to result in death. Having the properties of anaplasia, invasion, and metastasis; said of tumours. [EU]

Metabolite: Any substance produced by metabolism or by a metabolic process. [EU]

Methadone: A long-acting synthetic medication shown to be effective in treating heroin addiction. [NIH]

Methamphetamine: A central nervous system stimulant and

sympathomimetic with actions and uses similar to dextroamphetamine. The smokable form is a drug of abuse and is referred to as crank, crystal, crystal meth, ice, and speed. [NIH]

Molecular: Of, pertaining to, or composed of molecules : a very small mass of matter. [EU]

Morphine: The principal alkaloid in opium and the prototype opiate analgesic and narcotic. Morphine has widespread effects in the central nervous system and on smooth muscle. [NIH]

Mysticism: A philosophy based upon spiritual intuition that is believed to transcend ordinary sensory experiences or understanding. [NIH]

Naltrexone: Derivative of noroxymorphone that is the N-cyclopropylmethyl congener of naloxone. It is a narcotic antagonist that is effective orally, longer lasting and more potent than naloxone, and has been proposed for the treatment of heroin addiction. The FDA has approved naltrexone for the treatment of alcohol dependence. [NIH]

Nausea: An unpleasant sensation, vaguely referred to the epigastrium and abdomen, and often culminating in vomiting. [EU]

Neural: 1. pertaining to a nerve or to the nerves. 2. situated in the region of the spinal axis, as the neutral arch. [EU]

Neuroleptic: A term coined to refer to the effects on cognition and behaviour of antipsychotic drugs, which produce a state of apathy, lack of initiative, and limited range of emotion and in psychotic patients cause a reduction in confusion and agitation and normalization of psychomotor activity. [EU]

Neurology: A medical specialty concerned with the study of the structures, functions, and diseases of the nervous system. [NIH]

Neuron: A nerve cell in the brain. [NIH]

Neurophysiology: The scientific discipline concerned with the physiology of the nervous system. [NIH]

Neurosciences: The scientific disciplines concerned with the embryology, anatomy, physiology, biochemistry, pharmacology, etc., of the nervous sytem. [NIH]

Neurotoxic: Poisonous or destructive to nerve tissue. [EU]

Neurotransmitter: Chemical compound that acts as a messenger to carry signals or stimuli from one nerve cell to another. [NIH]

Niacin: Water-soluble vitamin of the B complex occurring in various animal and plant tissues. Required by the body for the formation of coenzymes NAD and NADP. Has pellagra-curative, vasodilating, and antilipemic properties. [NIH]

Nicotine: An alkaloid derived from the tobacco plant that is responsible for smoking's psychoactive and addictive effects; is toxic at high doses but can be safe and effective as medicine at lower doses. [NIH]

Opiate: A remedy containing or derived from opium; also any drug that induces sleep. [EU]

Opium: The air-dried exudate from the unripe seed capsule of the opium poppy, Papaver somniferum, or its variant, P. album. It contains a number of alkaloids, but only a few - morphine, codeine, and papaverine - have clinical significance. Opium has been used as an analgesic, antitussive, antidiarrheal, and antispasmodic. [NIH]

Overdose: 1. to administer an excessive dose. 2. an excessive dose. [EU]

Paralysis: Loss or impairment of motor function in a part due to lesion of the neural or muscular mechanism; also by analogy, impairment of sensory function (sensory paralysis). In addition to the types named below, paralysis is further distinguished as traumatic, syphilitic, toxic, etc., according to its cause; or as obturator, ulnar, etc., according to the nerve part, or muscle specially affected. [EU]

Paranoia: A psychotic disorder marked by persistent delusions of persecution or delusional jealousy and behaviour like that of the paranoid personality, such as suspiciousness, mistrust, and combativeness. It differs from paranoid schizophrenia, in which hallucinations or formal thought disorder are present, in that the delusions are logically consistent and that there are no other psychotic features. The designation in DSM III-R is delusional (paranoid) disorders, with five types : persecutory, jealous, erotomanic, somatic, and grandiose. [EU]

Pediatrics: A medical specialty concerned with maintaining health and providing medical care to children from birth to adolescence. [NIH]

Potassium: An element that is in the alkali group of metals. It has an atomic symbol K, atomic number 19, and atomic weight 39.10. It is the chief cation in the intracellular fluid of muscle and other cells. Potassium ion is a strong electrolyte and it plays a significant role in the regulation of fluid volume and maintenance of the water-electrolyte balance. [NIH]

Precursor: Something that precedes. In biological processes, a substance from which another, usually more active or mature substance is formed. In clinical medicine, a sign or symptom that heralds another. [EU]

Prenatal: Existing or occurring before birth, with reference to the fetus. [EU]

Presynaptic: Situated proximal to a synapse, or occurring before the synapse is crossed. [EU]

Prevalence: The total number of cases of a given disease in a specified population at a designated time. It is differentiated from incidence, which

refers to the number of new cases in the population at a given time. [NIH]

Proteins: Polymers of amino acids linked by peptide bonds. The specific sequence of amino acids determines the shape and function of the protein. [NIH]

Psychiatric: Pertaining to or within the purview of psychiatry. [EU]

Psychiatry: The medical science that deals with the origin, diagnosis, prevention, and treatment of mental disorders. [NIH]

Psychology: The science dealing with the study of mental processes and behavior in man and animals. [NIH]

Psychopathology: The study of significant causes and processes in the development of mental illness. [NIH]

Psychotherapy: A generic term for the treatment of mental illness or emotional disturbances primarily by verbal or nonverbal communication. [NIH]

Receptor: 1. a molecular structure within a cell or on the surface characterized by (1) selective binding of a specific substance and (2) a specific physiologic effect that accompanies the binding, e.g., cell-surface receptors for peptide hormones, neurotransmitters, antigens, complement fragments, and immunoglobulins and cytoplasmic receptors for steroid hormones. 2. a sensory nerve terminal that responds to stimuli of various kinds. [EU]

Riboflavin: Nutritional factor found in milk, eggs, malted barley, liver, kidney, heart, and leafy vegetables. The richest natural source is yeast. It occurs in the free form only in the retina of the eye, in whey, and in urine; its principal forms in tissues and cells are as FMN and FAD. [NIH]

Schizophrenia: A severe emotional disorder of psychotic depth characteristically marked by a retreat from reality with delusion formation, hallucinations, emotional disharmony, and regressive behavior. [NIH]

Sedative: 1. allaying activity and excitement. 2. an agent that allays excitement. [EU]

Seizures: Clinical or subclinical disturbances of cortical function due to a sudden, abnormal, excessive, and disorganized discharge of brain cells. Clinical manifestations include abnormal motor, sensory and psychic phenomena. Recurrent seizures are usually referred to as epilepsy or "seizure disorder." [NIH]

Selenium: An element with the atomic symbol Se, atomic number 34, and atomic weight 78.96. It is an essential micronutrient for mammals and other animals but is toxic in large amounts. Selenium protects intracellular structures against oxidative damage. It is an essential component of glutathione peroxidase. [NIH]

Sensitization: 1. administration of antigen to induce a primary immune response; priming; immunization. 2. exposure to allergen that results in the development of hypersensitivity. 3. the coating of erythrocytes with antibody so that they are subject to lysis by complement in the presence of homologous antigen, the first stage of a complement fixation test. [EU]

Serotonin: A neurotransmitter that causes a very broad range of effects on perception, movement, and the emotions by modulating the actions of other neurotransmitters in most parts of the brain. [NIH]

Steroid: A group name for lipids that contain a hydrogenated cyclopentanoperhydrophenanthrene ring system. Some of the substances included in this group are progesterone, adrenocortical hormones, the gonadal hormones, cardiac aglycones, bile acids, sterols (such as cholesterol), toad poisons, saponins, and some of the carcinogenic hydrocarbons. [EU]

Stimulant: 1. producing stimulation; especially producing stimulation by causing tension on muscle fibre through the nervous tissue. 2. an agent or remedy that produces stimulation. [EU]

Suppository: A medicated mass adapted for introduction into the rectal, vaginal, or urethral orifice of the body, suppository bases are solid at room temperature but melt or dissolve at body temperature. Commonly used bases are cocoa butter, glycerinated gelatin, hydrogenated vegetable oils, polyethylene glycols of various molecular weights, and fatty acid esters of polyethylene glycol. [EU]

Synaptosomes: Pinched-off nerve endings and their contents of vesicles and cytoplasm together with the attached subsynaptic area of the membrane of the post-synaptic cell. They are largely artificial structures produced by fractionation after selective centrifugation of nervous tissue homogenates. [NIH]

Thyroxine: An amino acid of the thyroid gland which exerts a stimulating effect on thyroid metabolism. [NIH]

Toxicity: The quality of being poisonous, especially the degree of virulence of a toxic microbe or of a poison. [EU]

Toxicology: The science concerned with the detection, chemical composition, and pharmacologic action of toxic substances or poisons and the treatment and prevention of toxic manifestations. [NIH]

Transdermal: Entering through the dermis, or skin, as in administration of a drug applied to the skin in ointment or patch form. [EU]

Tremor: An involuntary trembling or quivering. [EU]

Tryptophan: An essential amino acid that is necessary for normal growth in infants and for nitrogen balance in adults. It is a precursor serotonin and niacin. [NIH]

Tuberculosis: Any of the infectious diseases of man and other animals caused by species of mycobacterium. [NIH]

Urinalysis: Examination of urine by chemical, physical, or microscopic means. Routine urinalysis usually includes performing chemical screening tests, determining specific gravity, observing any unusual color or odor, screening for bacteriuria, and examining the sediment microscopically. [NIH]

Withdrawal: A variety of symptoms that occur after chronic use of some drugs is reduced or stopped. [NIH]

General Dictionaries and Glossaries

While the above glossary is essentially complete, the dictionaries listed here cover virtually all aspects of medicine, from basic words and phrases to more advanced terms (sorted alphabetically by title; hyperlinks provide rankings, information and reviews at Amazon.com):

- **Dictionary of Medical Acronymns & Abbreviations** by Stanley Jablonski (Editor), Paperback, 4th edition (2001), Lippincott Williams & Wilkins Publishers, ISBN: 1560534605, **http://www.amazon.com/exec/obidos/ASIN/1560534605/icongroupinterna**
- **Dictionary of Medical Terms : For the Nonmedical Person (Dictionary of Medical Terms for the Nonmedical Person, Ed 4)** by Mikel A. Rothenberg, M.D, et al, Paperback - 544 pages, 4th edition (2000), Barrons Educational Series, ISBN: 0764112015, **http://www.amazon.com/exec/obidos/ASIN/0764112015/icongroupinterna**
- **A Dictionary of the History of Medicine** by A. Sebastian, CD-Rom edition (2001), CRC Press-Parthenon Publishers, ISBN: 185070368X, **http://www.amazon.com/exec/obidos/ASIN/185070368X/icongroupinterna**
- **Dorland's Illustrated Medical Dictionary (Standard Version)** by Dorland, et al, Hardcover - 2088 pages, 29th edition (2000), W B Saunders Co, ISBN: 0721662544, **http://www.amazon.com/exec/obidos/ASIN/0721662544/icongroupinterna**
- **Dorland's Electronic Medical Dictionary** by Dorland, et al, Software, 29th Book & CD-Rom edition (2000), Harcourt Health Sciences, ISBN: 0721694934, **http://www.amazon.com/exec/obidos/ASIN/0721694934/icongroupinterna**
- **Dorland's Pocket Medical Dictionary (Dorland's Pocket Medical Dictionary, 26th Ed)** Hardcover - 912 pages, 26th edition (2001), W B Saunders Co, ISBN: 0721682812,

http://www.amazon.com/exec/obidos/ASIN/0721682812/icongroupinterna/103-4193558-7304618

- **Melloni's Illustrated Medical Dictionary (Melloni's Illustrated Medical Dictionary, 4th Ed)** by Melloni, Hardcover, 4th edition (2001), CRC Press-Parthenon Publishers, ISBN: 85070094X, **http://www.amazon.com/exec/obidos/ASIN/85070094X/icongroupinterna**
- **Stedman's Electronic Medical Dictionary Version 5.0 (CD-ROM for Windows and Macintosh, Individual)** by Stedmans, CD-ROM edition (2000), Lippincott Williams & Wilkins Publishers, ISBN: 0781726328, **http://www.amazon.com/exec/obidos/ASIN/0781726328/icongroupinterna**
- **Stedman's Medical Dictionary** by Thomas Lathrop Stedman, Hardcover - 2098 pages, 27th edition (2000), Lippincott, Williams & Wilkins, ISBN: 068340007X, **http://www.amazon.com/exec/obidos/ASIN/068340007X/icongroupinterna**
- **Tabers Cyclopedic Medical Dictionary (Thumb Index)** by Donald Venes (Editor), et al, Hardcover - 2439 pages, 19th edition (2001), F A Davis Co, ISBN: 0803606540, **http://www.amazon.com/exec/obidos/ASIN/0803606540/icongroupinterna**

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